HOARD'S DAIRYMAN

DECEMBER 25, 1961

The National Dairy Farm Magazine

Calves grow 17 lbs. heavier at four months on Purina Calf Startena Checkers

Recent Purina Farm test on 21 calves gives Calf Startena in new Checker form edge over Calf Startena Meal.

New Purina Calf Startena Checkers was developed over four years of research at the Purina Farm Dairy Unit, Gray Summit, Mo. This new product has several big advantages:

1. It's easy to handle and feed . . . makes feeding a calf ration easier than ever before.

2. Each calf gets exactly the right amount of essential ingredients . . . can't select some ingredients and leave others.

3. There's less waste in pails or trough, no fines . . . so it's economical to feed.

4. Test calves fed new Startena Checkers were even heavier at four months than calves grown on Calf Startena Meal . . . and Calf Startena Meal calves are far heavier than average!

Ask your Purina Dealer to tell you more about Purina Calf Startena Checkers next time you order feed. Your calves will go for Checkers . . . and you will go for the extra pounds of growth Checkers helps you get.

PROVE TO YOURSELF . . . PURINA FEEDING COSTS YOU LESS

Fight scours by adding the right amount of Purina Pura-Mycin to calf drinking water, milk, or milk replacer.

How to help stop calf scours this winter

Cold winter drafts and improper feeding are largely responsible for baby calf scours or bacterial enteritis. You can help stop scours this winter with effective, economical Purina Pura-Mycin.

At the first sign of diarrhea, mix 1 tablespoonful of Pura-Mycin per 100 lbs. of body weight with drinking water, milk, or milk replacer given at each feeding. Continue treatment for 2 or 3 days.

Your nearest Purina Dealer or Checkerboard Serviceman can fill your Pura-Mycin needs. Ask him for Pura-Mycin when you're in town at his Checkerboard Store, or next time he calls at your farm.

Heilman new Holstein fieldman

Robert D. Heilman, the assistant county agent in Cumberland County, Pennsylvania, since 1959, has been named Holstein fieldman for Delaware, Maryland, North Carolina, Virginia, and West Virginia. He succeeded Jack Krause, recently promoted to director of extension by the National Holstein-Friesian Association of America. Both men began their new duties December 1.

A dairy science graduate of Pennsylvania State University, Heilman grew up with a registered dairy herd and was an active 4-H club member throughout his boyhood. He and his wife will relocate in Culpeper, Va., in the near future.

Milk to keep for several weeks?

It is now being predicted that within two years, milk that will keep fresh for a month without refrigeration will be sold in several countries of Europe. It seems the producers will even give a written guarantee to that effect. This durable milk will be produced by a flash sterilization process known in Switzerland as "uperisation," combined with a new bottle filling machine now being manufactured by a well-known Swedish company.

Under the "uperisation" method, milk is subjected to steam pressure, heated to about 300 degrees F. with subsequent rapid cooling to 175 degrees. The steam evaporates and the original quantity of milk remains. This process does not alter nutritive value, digestibility, odor, taste, or color of the milk.

The secret of the new machine (supposed to be in commercial production by 1963) is the fact that air never gets access to the milk being processed. Tests have shown that the vitamin content, too, remans completely unchanged. The new conservation and bottle-filling method opens new possibilities for the marketing of fluid milk. Retail stores, cafeterias, automats, and so forth will be able to buy milk without the now prevailing risk of rapid spoilage.

AGRA-EUROPE, BONN

Jersey butterfat champion

Regent Basil Jeanie, a registered Jersey cow owned by Don Brewer and Son, Wilmington, Ohio, has just completed the highest official butterfat record in 305 days, 2x milking, in the history of the American Jersey Cattle Club.

At the age of 7 years 3 months, "Jeanie" began her record-breaking performance in which she produced 17,196 pounds of milk, 1,113 fat.

Incidentally, "Jeanie" won the 1959 National Milking Derby held in connection with the All American Show and Sale. Her paternal sister, Regent Basil June, holds the national HIR milk record for 305 days, 3x with 20,372 pounds of milk, 1,018 pounds fat.

Abe and Zeke had been on separate fishing trips and were swapping accounts.

Abe said, "I caught the biggest catfish I have ever seen. It weighed 65 pounds!"

Zeke replied, "I snagged a lantern I'd lost 10 years ago and you know, the durn thing was still lit!"

There was a dead silence for about five minutes. Finally Abe said, "Zeke, I'll knock off 30 pounds from my catfish if you'll put out the light on that lantern."

What do baking and pipeline milking have in common?

When you consider a pipeline milker, ask your wife about PYREX® baking ware. Chances are she has used it for years—nine out of ten housewives do! She bakes in it, uses it to store food in the refrigerator and then reheats it in her oven. It stands up under this and the hundreds of times she washes it. And probably it is still as sparkling clean as when she got it.

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For more information on PYREX pipelines for milking systems, please write for a copy of our Dairy Pipeline Bulletin.

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HOARD'S DAIRYMAN

The National Dairy Farm Magazine

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COVER PICTURE

We have yet to find an editor who has improved on the Scriptures at this greatest of seasons. Thus, we emphasize on our cover "The Story of Christmas," according to St. Luke. May it remind all of us to return to the reading of Scripture if we are to understand fully the significance of the anniversary we celebrate December 25. It has long been a favorite of ours to combine the reading of John 1 and Luke 2, as we have on the editorial page of this issue. We commend it to your meditation.

From all of us who work for you through the columns of Hoard's Dairyman . . . a very Merry Christmas and a Happy New Year!

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Washington Dairygrams

BIGGEST AND MOST VITAL LEGISLATIVE FIGHT FOR DAIRYMEN NEXT YEAR WILL NOT BE ON SUPPORTS OR CONTROLS. BATTLE WILL BE OVER IMPORTS. WHITE HOUSE WANTS TO REDUCE TARIFFS AND REMOVE QUOTAS. HEARINGS IN CONGRESS WHERE BATTLE WILL BE WAGED. DAIRY FARMERS FACE MORE IMPORTS OF FOREIGN DAIRY PRODUCTS.

NO TROUBLE ON COTTON IS APPARENT AS ADVISORY COMMITTEE SUGGESTS NO ACTION NEXT YEAR TO CHANGE PROGRAM.

BRUCELLOSIS CAN BE COMPLETELY ERADICATED BY 1972, SAYS U.S.D.A. OFFICIAL. FORECASTS ENTIRE NATION WILL BE MODIFIED-CERTIFIED BY 1965, THEN A CLEANUP.

CATTLE MOVEMENT INTO FLORIDA RESTRICTED BECAUSE OF THE RECENT SPREAD OF SCREWWORMS INTO ALABAMA AND GEORGIA FROM AREAS FARTHER NORTH AND WEST.

LIVESTOCK MAY BE GRAZED ON LAND DIVERTED UNDER THE 1961 FEED GRAIN PROGRAM. BUT ONLY UNTIL END OF YEAR.

POTATO GROWERS REQUEST ADVISORY COMMITTEE TO ADVISE THE SECRETARY OF AGRICULTURE ON A PROGRAM TO HELP BRING GROWERS OUT OF SURPLUS AND PRICE DOLDRUMS. CONSIDER LEGISLATION TO BAR ANY BUT NO. 2 OR BETTER POTATOES FOR HUMAN CONSUMPTION.

DAIRYMEN WILL HAVE LARGER GROSS INCOME NEXT YEAR. MORE MILK IS REASON. NO PRICE IMPROVEMENT EXPECTED.

NEW WHEAT PROGRAM IS RUMORED HERE. REPORTS ARE THAT IT WILL BE A DOMESTIC PARITY PROGRAM WITH BUSHEL RATHER THAN ACREAGE ALLOTMENTS. ORDERLY LIQUIDATION OF SURPLUS OVER 10 YEARS. DOMESTIC SHARE WOULD BE ABOUT 40 PER CENT OF CROP. REMAINDER OF CROP WOULD GO AT FEED GRAIN PRICES.

★ ★ ★

In YOUR next issue!

THE DAIRY OUTLOOK FOR 1962 . . . reveals dairy price and income prospects for the year ahead. Included in this feature are the results of farm surveys showing how costs of milk production and farm profits are influenced by size of herd.

TEST EVERY TWO MONTHS? It's nearly as accurate as monthly testing, and more cows could be tested at lower cost. About 15 per cent of the testing in New Zealand is bimonthly.

LATEST IN DAIRY FEEDING . . . recommendations are reported by four world dairy cattle nutrition authorities in our Hoard's Dairyman ROUND TABLE feature. English research is summarized by Dr. C. C. Balch of the University of Reading.

AND MANY MORE . . .

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Hoard's Dairyman
FORT ATKINSON, WISCONSIN

Opinions, Brickbats, Bouquets

These columns are open to the readers of Hoard's Dairyman for the expression of their opinion on any subject, whether radical or conservative, destructive or constructive, wise or foolish, critical or commendatory. Hoard's Dairyman assumes no responsibility for opinions expressed.

Should work together

The article on collective bargaining for farmers written by Glenn Lake in your September 25 issue interested me. I believe, if the farmers gave it serious thought, they would realize the tremendous benefits they could receive by grouping their production and selling together. Our present cooperatives have attained only limited success in marketing our products because they have been competing with one another for a market instead of working together for a higher price.

Minnesota DON POWERS

A commendation . . .

Hoard's Dairyman is to be commended along with Robert Everingham for his fine article, "Are you milking more but enjoying it less?" (October 10, page 935.)

It surely is a pleasure to read about a man such as Mr. Everingham, who realizes that farming, like any other business, has to be set up and run as such, in order to obtain smoothness of operation.

Too often those who do all of the griping about hired help, and farming in general, have only themselves and their own inability to blame.

". . . shun debts as you would the devil," by William F. Groves, Wisconsin, is also deserving of praise for his commentary of a previous article, "It will pay you to borrow."

In my opinion, constructive criticism doesn't hurt anyone or anything. It should be practiced more.

Pennsylvania RICHARD KITCHEN

Let men wear dresses!

Because the "Puzzled Milkmaid" from Mississippi asked some questions in September 25 issue ("Protest 'women wearing the pants' ") please allow me to moralize on this demoralizing question.

There is a timeworn expression, "There's a place for everything and everything in its place." The real cure for this would be for men to wear dresses. Some of them, including dairy farmers with job-holding wives, would surely be in their place wearing a dress of some sort. The rest of us could wear a sort of Roman toga as a protest.

It seems women were slaves so long down through the ages that they just have to be a slave to something in this day of emancipation of the female sex. Some are slaves to cigarettes, some are slaves to booze, some are slaves to men on the sly, some are slaves to fashion, some are slaves to the Joneses. Some are slaves to all of these and more. Perhaps if some psychologist would explain it to them they would understand and get back on the track again. The clergy might do it but they quit long ago.

Ohio CARL PORTZ

View on "retreat"

Bravo to "Puzzled Milkmaid" in the September 25 issue for her protest of "women wearing the pants." She isn't alone in feeling that way.

I wonder if she has seen or heard that little verse about the matter by a California writer about 20 years ago. I do not recall the author's name but, from memory, the verse goes something like this:

Aye, encase your legs in slacks, my dear,
They are your legs, my sweeting,
You look divine as you approach;
You should see yourself retreating.

Oregon G.C.L.

The owner's "boner"

The following may be of some interest to Stephen Spencer, Pennsylvania, whose poem appeared in the November 10 issue:

"The burned-out cow"

Weep no more for the burned-out cow
But rather for her owner
Though he really earned no sympathy
For making such a "boner."
She was a willing dupe, 'tis true,
With enormous appetite;
Her only virtue, it might seem,
To make milk with all her might!
Her owner pushed her much too hard
With a stimulating ration
To prove that he, as a dairyman,
Was "top dog" in the nation!
We are sorry for the wasted feed,
For the good cow's shortened days,
And trust the man who owned her
Has now, wisely, changed his ways!

Wisconsin ROY T. HARRIS

Raise all commodities

I read Hugh Moore's article, "Better prices from bargaining power?" (October 25 issue), but I believe we will be able to raise milk prices slightly. In order to keep all commodities in balance we will have to raise prices of all commodities proportionately or there would be a large shift into that product.

I believe the National Farmers Organization has such a program.

The dairy co-ops could play a major roll as they are owned by the producers and could hold the processed dairy products off the market, if necessary, for a short time.

As the farmers control nearly 100 per cent of the food, I believe they have as much bargaining power as labor and industry combined. All they have to do is get together and bargain and they will receive justice at the market place.

Minnesota RAYMOND SOMMERS

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DAIRY CATTLE HEALTH BULLETIN

CAKED UDDER CAN'T BE PREVENTED . . . IT CAN BE TREATED

Caked udder or mammary edema is frequently encountered in high-producing heifers and cows shortly before or after calving.

The painful swelling—which often extends from the floor of the chest to the udder—can result in a serious loss of milk revenue for 1 to 2 weeks or longer. If the condition is neglected, or is a chronic problem at calving time, the udder attachments may break down prematurely and reduce the productive life of a valuable animal.

CAUSE OF CAKED UDDER STILL NOT KNOWN

The exact cause of caked udder is still not known. Most cases, however, are due to the strain placed on the heifer or cow as they prepare for the onset of lactation. The changes in blood protein brought about by the formation of immune bodies for the colostrum or first milk, are believed to be important contributing factors.

NOTE: A change in feeding practices, such as a reduction in grain, will not, in most cases, prevent udder edema. In fact, reducing the grain intake of high-producing animals just after calving may increase the possibility of ketosis or acetonemia.

NEW VETERINARY DRUG PROMISES PROMPT RELIEF OF UDDER EDEMA

Caked udder can now be treated with a new, effective drug, DIURIL® Boluses available from your veterinarian. Ineffective, time-consuming practices such as the use of massage, mild liniments, bag balms, and hot Epsom Salt packs can now be eliminated.

After treatment with the blue DIURIL Boluses, under the direction of your veterinarian, you will probably see and feel a difference in 24-48 hours as the hard, tender and swollen bag becames soft and pliable. Warning: milk taken from dairy animals during treatment and for three days after latest treatment, must not be used for food.

DIURIL Boluses for caked udder or mammary edema problems — before and after calving—are available only through your veterinarian.

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Keep calves warm . . .

. . . with artificial heat in cold weather. Tests were conducted with heat lamps, heated concrete and rubber mats.

by E. A. Johnson and G. W. Isaacs

HEAT LAMP is protected by a reflector shield. Projector and reflector lamps can be used without shields, since they can be hung away from the calves' reach.

HOW can a calf brooder be used to advantage by the dairy farmer? In the first place, it often may be desirable to remove the newborn calves from the dairy barn in order to protect them from contagious diseases. Since newborn calves are highly susceptible to disease, maintenance of a warm, sanitary environment is essential, especially during the critical 60-day period after birth.

Secondly, common, deep bedding practices, although warmer for the calf, provide an ideal medium for the growth of disease organisms.

This is where the electric brooder comes in. It can provide the supplemental heat needed to house new calves apart from the warmth of the dairy herd while using a minimum amount of bedding.

Electrically-heated concrete mats were tested in the winter of 1952 in a semi-open, pole-type building at Purdue University. Resistance-type heating cable was buried about ½ inch below the surface of the mat. The surface of the 3- by 4-foot mat was slightly crowned to provide good drainage. These mats were tested in 4- by 8-foot pens, leaving approximately 20 square feet of bare concrete floor where the calf fed and exercised. No straw or other bedding was used with mats.

Like raised bed . . .

The tests indicated that calves provided with a raised bedding surface will form cleanliness habits of keeping their bedding area cleaner than that of the rest of the pen, much the same as swine. They also showed that calves ordinarily would not need supplemental heat for longer than an eight-week period.

In 1958, electrically-heated rubber pads were tested as calf brooders. Three different control devices were used: An averaging thermostat which responded to the average temperature of the mat, bimetallic thermostats wired in series, and a pressure-sensitive switch mat placed between the heater and the insulation. The switch mat turned the heater on when the calf stood or laid on the mat.

In general, the brooders providing underfloor heat were unsatisfactory. The temperature of the concrete mats was difficult to control. Thus, the calf was uncomfortable a large part of the time on the mat, due to excessively high or low temperatures. Also, these brooders used energy even when the calf was away from the mat.

Caused sores . . .

The temperatures of the rubber mats were controlled more satisfactorily than the concrete mats. However, all the animals on these mats developed sores and lost hair. No apparent cause for this irritation could be determined, so it would seem to be due to some property of the rubber, rather than to the heat.

The satisfactory performance of the rubber mat controlled by a pressure switch was offset by the fact that this mat required three to six minutes to warm up. This made it difficult for the calf to learn to use the brooder, a serious disadvantage since the animals could not be allowed several days to learn where heat was available, due to the danger of pneumonia.

In more recent tests, several 300-watt lamp brooders controlled by pressure switches were put in operation. In each pen, the lamp was suspended from the ceiling of the test building. The face of the lamp, when mounted on a common outlet box in a porcelain lampholder, was about four feet from the floor.

This height was necessary to prevent lamp breakage by the calves. However, at this height the energy pattern of a heat lamp covered too large an area. For this reason, 150-watt lamps of the reflector-spot type were used, which have a similar energy pattern. These lamps are designed for lighting applications, but are nearly as efficient for heating as heat lamps. However, their expected life is only about one-fifth that of heat lamps.

Protect heat lamps . . .

Heat lamps could be used at lower levels if they were protected from bumping by reflectors and guarded by wire mesh to prevent the calves from licking them.

Newborn calves were placed on test in the brooders during January and March. These calves learned quickly to avail themselves of the heat and appeared comfortable regardless of outdoor temperature.

The lamp brooders seem more adaptable and dependable than the underfloor types. The lamp operated by a pressure switch used no energy unless the calf desired heat. However, the lamp control saved only 1.75 kilowat hours of energy per day over continuous operation, which is about 4 cents per day. Since the control components cost about $25, it would take 3 years to pay for the equipment. This could be longer than the expected life of some of the components. The simplicity and satisfactory daily performance of the lamp brooder recommend its future development for practical calf brooding.

The authors are agricultural engineer, University of Massachusetts, and professor of agricultural engineering, Purdue University, respectively.

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HIGH LIFETIME HEALTH LEVEL ESSENTIAL FOR TOP PRODUCTION

From new-born calf through the entire productive lifetime of the cow, this Coordinated Feed-Health Program builds and maintains the good health that results in maximum production

Does a healthier herd mean higher, more uniform milk production? *All available evidence indicates that it certainly does.*

And since men who milk cows milk for money, this Coordinated Feed-Health Program is important to every dairyman because it is easy and practical to use and, with good herd management, results in getting the best production from your cows inherent in their breeding.

Briefly, the Coordinated Feed-Health Program provides a common-sense schedule for using good formulated feeds and supplements containing AUREOMYCIN,® and the vaccines and medications essential for preventing and treating diseases.

AUREOMYCIN controls a wide range of diseases and was the first antibiotic accepted by the Federal Food and Drug Administration for continuous feeding to lactating dairy cows. *Laboratory tests and farm use have shown no residues in milk when fed as directed.*

Cyanamid Animal Health products have long been known for their quality and effectiveness.

Together—AUREOMYCIN in formulated feeds and Cyanamid Animal Health Products can mean a healthier herd and bigger milk checks for you.

Take time to read the brief steps in the program. Then discuss it with your feed man. Your feed man has a free special folder for you which explains the program in detail. Ask him for it, or write American Cyanamid Company, Agricultural Division, Princeton, N. J. ®*AUREOMYCIN is American Cyanamid Company's trademark for chlortetracycline.*

1. Give the fresh cow a good start. At calving, feed your cows a good formula feed which will provide 0.1 mg. of AUREOMYCIN per pound of body weight per day. AUREOMYCIN helps keep cows free of disease, gives them the extra good health and vigor needed for calving. It also helps keep cows in fine condition for their heaviest production period.

2. Protect your new-born calf. From new-born to 3 days, the colostrum milk is the calf's best friend. To prevent or treat calf scours or pneumonia, the calf should receive one AUREOMYCIN OBLET 1 to 3 hours after birth. This is good routine practice. The use of a balling gun facilitates administration of the OBLET as shown in illustration above.

3. Building quality herd replacements. The quality of the cows in your future milking herd depends on the quality of the calves you raise. It is important to start at the beginning. From 4 to 45 days of age, use a milk replacer with 50 gm. of AUREOMYCIN per ton. You prevent bacterial diarrhea, increase rate of growth, and raise vigorous calves.

4. Keep healthy growth. From 7 days to 4 months of age, feed a calf starter containing 50 gm. of AUREOMYCIN per ton. This will protect them against bacterial diarrhea and pneumonia, foot rot, and will reduce losses from respiratory infections. If flies are a problem, the application of malathion will keep your calves happier and healthier.

5. Establish mastitis control program. Have your veterinarian test entire milking herd and vaccinate against staph mastitis and Staphylococcus Aureus Toxoid (Slanetz Strain). At 4 to 6 months, vaccinate for brucellosis and with LEBAC® for leptospirosis. Use a calf grower which will provide 70 mg. of AUREOMYCIN per calf per day.

6. Feed for top milk production. Use a good dairy feed or supplement which will provide 0.1 mg. of AUREOMYCIN per pound of body weight per day. AUREOMYCIN helps keep your cows free of visible and invisible diseases which decrease production. Good health lets them produce to the full extent of their bred-in capacity. *Result: more income per cow!*

The label instructions on Cyanamid products, and on products containing Cyanamid ingredients, are the result of years of research and have been accepted by Federal and/or State Governments. Always read the labels and carefully follow directions for use.

CYANAMID

COORDINATED FEED-HEALTH PROGRAM

CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE

HOARD'S DAIRYMAN
Founded in 1885

Watch for protein shortage... with corn silage

Unless some legume hay is fed, you may need to increase the protein in the grain mix to as much as 25 per cent to avoid serious protein shortage.

by T. C. Blalock

MORE and more dairymen are using silage as the main roughage in their feeding program. There are several reasons. First, research as well as dairymen's experiences have shown you can get top production on a heavy-silage, limited-hay forage feeding program. And, near top production can be maintained on all silage.

Since many farms do not produce enough hay to justify the equipment and facilities needed to make top-quality hay, it usually is easier to produce top-quality silage than hay. Under most conditions, more total digestible nutrients can be produced from an acre of land in the form of corn or sorghum silage than from any other crop.

Finally, it is now possible to almost completely mechanize silage feeding, an important point to labor-conscious dairymen.

Though considerable interest has been shown in some of the new hybrid sorghums for silage, the trend seems to be back to corn, particularly if it can be grown equally well.

Corn silage, generally the standard by which other silages are compared, is an excellent feed for milking cows. But, of all forages, it is one of the lowest in protein content.

In feeding programs where hay, particularly legume hay, was the main forage with corn silage used as a supplement, this low protein level did not cause any problem. The relatively high protein content of the hay supplied enough protein when fed with a 14 per cent grain mixture.

However, more recent evidence indicates a protein shortage definitely may exist if corn silage makes up the bulk of the forage fed to the milking herd. The condition may be further aggravated by the fact that under a heavy forage feeding program less grain is needed. Unless the protein content of the grain mixture is increased, a serious protein shortage may develop.

No protein shortage here . . .

Let's assume we have a herd of cows averaging 1,300 pounds in body weight. They are producing an average of 35 pounds of 3.6 per cent milk per day. If our feeding program is based on the heavy use of a legume hay as the main forage, we will experience no protein shortage in the herd, even when feeding a grain mixture of 12 to 14 per cent crude protein content.

Suppose, however, we limit hay to about ½ pound per 100 pounds of body weight, so that each cow will get about 6 pounds per day, with the balance of the roughage coming from corn silage.

Even on such a program there will be no protein shortage by feeding a 14 to 16 per cent grain mixture if the herd is fed only a limited amount of roughage, up to about 1½ pounds of hay equivalent per 100 pounds of body weight.

The large amount of grain (which will be relatively high in protein) required when this low level of forage is fed will supply enough protein for the average herd.

On the other hand, if we have a good supply of corn silage, we may wish to feed roughage more liberally than this. If we hold the hay at 6 pounds and increase the silage to 75 pounds per cow, this would be about 2½ pounds of hay equivalent per 100 pounds of body weight. By Morrison's standards, this is considered to be a very liberal forage feeding program.

More grain will help . . .

How much grain will be required and what level of protein should it contain?

Hay tested in North Carolina program last year contained an average of 12.2 per cent crude protein and 8.9 per cent digestible protein; the corn silage averaged 2.2 and 1.3 per cent, respectively. About 6 pounds of this kind of hay and 75 pounds of corn silage will contain only 1.5 pounds of digestible protein.

At this rate of forage feeding, Morrison's grain feeding charts indicate that a cow producing 35 pounds of 3 per cent milk daily will need about 8 pounds of grain to satisfy her energy needs.

A 1,300-pound cow producing at this level requires 2.7 pounds of digestible protein daily.

Since the above forage program supplies only 1.5 pounds of digestible protein, the 8 pounds of grain being fed will need to contain the difference, or 1.2 pounds. This will require about 20 per cent crude protein in the grain mixture to avoid a protein shortage.

The level becomes even higher in herds where corn silage is fed liberally or is the sole source of roughage for the herd. This feeding program is becoming increasingly popular on many farms.

If the above herd were being fed only corn silage at the rate of 90 pounds per cow per day, the same amount of grain would be required to satisfy their energy needs. However, due to the low protein content of corn silage, the protein in the grain mixture would have to be increased to at least 25 per cent.

In many herds this whole problem of protein shortage may be further aggravated by underfeeding, or a shortage of energy.

Recent studies by Dr. H. R. Conrad and others at Ohio State showed that cows in milk still may be short of protein, even when fed more than recommended, if they are short of energy. Apparently, even though it is available, cows are not able to efficiently utilize protein if they are lacking in energy.

What steps can you take to be sure your herd does not suffer from a protein shortage?

- Be sure your cows get enough energy. Check your grain feeding rates against Morrison's standards and, even then, try feeding another pound or two to see if you get an increase in production. Remember, underfeeding is far more expensive than overfeeding!
- If you feed roughage at the rate of less than 1½ pounds of hay equivalent per 100 pounds of body weight and feed grain according to production, you probably will not experience a protein shortage when feeding a grain mixture containing 16 to 18 per cent crude protein. If part of this is a legume hay or silage, a 14 per cent mixture is enough.
- When your rate of roughage feeding reaches 2 to 2½ pounds per 100 pounds of body weight and hay is limited to about ½ pound per 100 pounds body weight, you will need a grain mixture of not less than 18 to 20 per cent. If corn or sorghum silage is fed at this rate as the sole roughage, a 24 to 26 per cent grain mixture will be required.

To avoid feeding a grain mixture containing this much protein, some dairymen are feeding each cow from 5 to 6 pounds of a mixture of 750 pounds of corn and cob meal and 250 pounds of cottonseed or soybean oil meal. This is fed on top of the silage in addition to the regular grain feeding at milking time. It will supply enough protein so the regular grain ration for the milking herd will need to contain only about 16 per cent crude protein. **THE END**

The author is in charge of dairy extension, North Carolina State College.

FEEDING SILAGE AUTOMATICALLY, 90 pounds a cow a day, is not uncommon. Since corn silage is low in protein, grain mixture should be adjusted to meet protein requirements of cows in milk.

Farm Flashes...

seasonal reminders and research notes for dairymen

COWS' BREEDING EFFICIENCY VARIES BY SEASON

Seasonal differences in breeding efficiency for dairy cattle have been reported in various areas of the country. Evidently, light and temperature both are important factors controlling seasonal fertility.

Until a recent study, most seasonal variations have been directed toward the bull. However, semen quality has not necessarily coincided with seasonal fertility patterns.

A study of the part the female plays in seasonal breeding efficiency was made possible in Arizona where extreme high summer temperatures persist. Using breeding records of dairy cows inseminated with semen collected from bulls in Palo Alto, Calif.; Columbus, Ohio; and Phoenix, Ariz.; no appreciable difference in fertility could be seen between the sources of semen during the hot summer months. In all cases, the breeding efficiency was low.

At the same time, however, dairy cows bred in moderate climatic areas outside Arizona with semen from the same Palo Alto bulls had a high rate of breeding efficiency. It is evident, therefore, that the cow is the main contributor to the low breeding efficiency influenced by high environmental temperatures.

A breed difference also was observed. Jerseys, Guernseys, and Holsteins were studied. The Jerseys were not affected during the summer months. Guernseys and Holsteins, however, had severe depressions in breeding efficiency corresponding to the high temperatures. A second depression in breeding performance was found to occur during the winter months, similar to those reported in some northern latitudes of the United States.

NEW VARIETY OF ALFALFA

The U.S. Department of Agriculture and the Utah Experiment Station have announced a new disease-resistant alfalfa for the intermountain region of the Western United States. It is called Uinta, and in four years of testing at Logan, Utah, produced 67 per cent more seed per acre than Ranger, the variety most extensively grown in this country. Uinta is more resistant to yellow leaf blotch and downy mildew than Ranger; it resists bacterial wilt, but is susceptible to the spotted alfalfa aphid.

Limited quantities of foundation seed of the new variety are now available to certified seed producers from the Utah station at Logan, and some certified seed is expected to be available to farmers for planting in 1963.

PROPER TEMPERATURE MAY BOOST FEED VALUE

Cattle on pelleted feed usually gain weight more efficiently than if fed a ground ration. Scientists don't know all the reasons why; some believe that heat involved in the pelleting process changes feed so it can be utilized better.

U.S. Department of Agriculture experiments are underway to see if temperatures of about 150 to 225 degrees boost feed value. Object of these studies is to determine if there are temperatures, comparable to the ones involved in pelleting, that enhance the value of feed.

If this is so, heat will be another factor, in addition to fineness of grind, known to make pellets an efficient food.

A recent study showed that a temperature of 260 degrees reduces feed value. (Temperatures lower than 260 degrees develop when feed is processed into pellets.) Researchers think the high temperature lowers the quality of protein in the feed or makes it less available for digestion by cattle.

In this study, a Bermuda grass-corn ration in three different forms (ground, pelleted, and ground and heated to 260 degrees) was fed steers at the Agricultural Research Center, Beltsville, Md. Agricultural research service animal husbandmen P. A. Putnam and R. E. Davis made the study. Steers receiving ground ration gained 1.79 pounds per day; those getting pellets gained 2 pounds daily.

Animals on the ground-and-heated ration averaged only 0.29 pound of daily gain. And these steers lost weight until a protein supplement was added to their diet.

KEEPS FEET WARM IN MILKING PARLOR

Now, dairymen can be as contented as the cows they milk. Professor C. N. Turner, Cornell agricultural engineer, has solved the problem of cold feet for milkers, traditionally a plague to dairymen in milking parlors. The pit the workers milk in acts as a trap for cold air, chilling them from the waist down.

A successful heating system was reported for the first time at the annual executive committee meeting of the New York Farm Electrification Council held recently at Cornell University. The device works by means of hot water circulated through black steel pipes installed along the sides of the pit. Previous attempts to warm the pit have failed because heat was introduced too high in the parlor to be effective.

Dairymen who have tried the device report waist-to-feet winter comfort for the first time during working hours.

Designed by Turner, the system can be installed by tradesmen in new or existing milking parlors. All electrical parts are manufactured or assembled in a packaged unit that can be installed outside the moist pit area, reducing the danger of shock and giving the equipment longer life expectancy.

"... report on our soil analysis ... 'Move'."

LEAD POISONING ON INCREASE

Illinois veterinarians have reported a sudden increase in livestock fatalities due to poisoning by lead paint. While there is no explanation for the increase, the majority of victims are cattle and sheep. Quantities of lead that would cause little or no reaction in other farm animals are often fatally toxic to calves and lambs.

Dr. W. G. Huber, pharmacologist, says that less than a teaspoon of lead would be fatal to a young calf or lamb. The amount of lead needed for a lethal dose increases with the animal's weight.

These small doses are obtained quickly once the animal discovers that lead paint has an irresistible salty flavor. This tasty "treat" is everywhere, on the freshly-painted surface or the old paint under it, the water bucket converted from a paint pail, or the flakes of paint scattered in the grass.

Once inside the body, lead gets into the blood stream and attacks nerve centers. Epsom salts may sometimes be helpful. While the salts are not a treatment, they prevent further absorption of lead by turning it into a lead sulphate. Since the animal's system cannot absorb this material, the lead is eliminated in the feces.

Signs of lead poisoning are nervousness or excitement, blindness, incoordination, epileptic-like seizures, and grinding of the teeth. Once these signs appear, death rates approach 100 per cent in cattle and sheep.

Since treatment in extreme cases is almost impossible, prevention is the only practical solution to the problem. Here are two important precautions:

1. Keep livestock away from paints having a lead base and also other sources of lead, such as insecticide sprays and old automobile batteries.
2. Do not use paint pails as water buckets.

IDENTIFY CALVES WHEN SMALL

Identifying dairy calves is an absolute necessity for the purebred breeder and an advisable practice for the grade dairyman.

It is important that a calf be identified when it is small, since this is when most of the information is known. Also, the calf is easier to handle.

C. W. Nibler, Nebraska extension dairyman, listed four items which can be preserved for future reference by marking a calf properly and recording the information in a good record book:

1. Date of birth.
2. Name and number of sire and dam.
3. Date of vaccination against diseases.
4. Date and method of disposal.

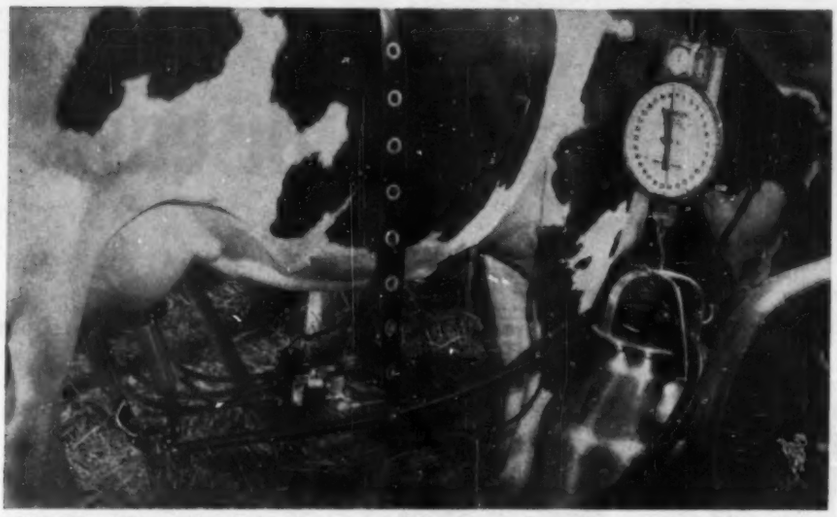
One of three different methods can be used in identifying calves:

Tattooing the ear of the calf of the solid-color dairy breeds such as the Brown Swiss and the Jersey.

Photographing or sketching the color markings of the calf of the broken-color breeds such as Holstein, Ayrshire, and Guernsey will furnish information that allows permanent identification.

Eartag calves when they are young. Record the ear tag number, together with the names of the sire and dam and date of birth, in a permanent record book.

Satisfied with your milking rate?



EXPERIMENTAL UNIT designed to test milking rates and completeness of machine milking.

Size of teat openings and tautness of sphincter tissue largely determine rate. But what about the effects of vacuum levels, pulsation rates and ratios? Here are findings of New York research.

by G. H. Schmidt

IN THE previous article ("Get all the milk rapidly and safely," November 25 issue) we outlined the five steps in a proper milking procedure and gave the reasons for each step. Here we shall discuss factors which govern the cow's rate of milking.

A cow's milking rate is controlled primarily by: (1) The size of the teat opening, and (2) the tautness of the sphincter tissues. ["It's the teat end that counts," Hoard's Dairyman Sept. 25 issue] which surround the teat canal and keep it closed when the cow is not being milked. These appear to be inherited characteristics. This was shown in a British experiment where the rate of milking was determined on individual quarters.

When cows were milked under normal conditions, large differences in the milk flow rate (pounds of milk yielded per minute) between cows were observed. However, when the cows were milked after the teats had been cannulated with a milk tube to give all teats the same diameter teat opening, milk flow rate was nearly identical for all cows.

108 cows milked in tests . . .

The milking rate of a group of cows can be changed somewhat by altering the milking machine, the environment, feeding practices, and, above all, management. But don't risk trouble by altering the milker yourself. This should be done only by the manufacturer.

A recent experiment was conducted at Cornell University to determine the effect of vacuum levels, pulsation rates, and pulsation ratios on the rate and completeness of machine milking. The pulsation ratio is the ratio of time that milk flows from the teat to the time the flow ceases during a given pulsation. Or it may be considered the ratio of time the teat cup liner is expanded to the time it is in collapse. The variables tested were: Vacuum levels — 12, 18, 24 inches of mercury; pulsation rates — 40, 80, 120 per minute; and pulsation ratios — 1:1 and 3:1.

A total of 108 cows was milked for 28-day periods at the various combinations of treatments. While the detailed findings from all the combinations are too voluminous to present here (they will appear in the Journal of Dairy Science), a summary of our experiment is presented in the table.

It will be noted in the first part of the table that increasing the vacuum level from 12 to 18 inches had no marked effect on machine stripping time, but markedly decreased the normal milking time (before stripping) and the total milking time. The maximum rate of flow (highest yield per minute) was increased.

Increasing the vacuum level from 18 to 24 inches of mercury, however, markedly increased the machine stripping time and thus increased the total milking time. This makes the total milking time at 24 inches about the same as that at 12 inches of mercury.

The maximum rate of flow was not increased at 24 inches over the 18 inches of vacuum. The increase in machine stripping time is apparently due to the fact that high vacuum levels cause more teat cup crawl than the lower vacuum levels. A milking machine is being used in Holland which operates at 25 inches of vacuum. These research data would indicate that such a machine has no advantage over a machine at 15 to 18 inches.

This work should **not** be interpreted to indicate that 18 inches of vacuum is the ideal level of vacuum. The experiment was designed to determine the effect of wide variations in vacuum levels, pulsation rates, and pulsation ratios on the rate and completeness of milking. There is probably a level between 12 and 18 inches that would provide a better milking rate than either of these. This work indicates, however, that milking machines with low vacuum levels require a longer time to milk cows and do not lessen machine stripping time.

Our research and that at other institutions now indicates that the vacuum level **in itself,** is not related to the incidence of clinical mastitis. We hasten to add that this appears true when good milking procedures are carried out with properly operating machines.

It will be noted in the table that the pulsation rate had no striking effect on the machine stripping time, the total milking time, or the maximum rate of flow. In other research work it has been found that increasing the pulsation rate from 20 to 50 pulsations per minute decreased total milking time.

It was also found that a pulsation rate below 40 pulsations per minute caused some discomfort to the cow. Increasing the pulsation rate from 50 to 80 pulsations per minute caused a slight decrease in total milking time.

Very little work has been done in the United States on the effect of the pulsation ratio on the rate of milking and the completeness of milking. It can be seen that widening the pulsation ratio from a 1:1 ratio to a 3:1 ratio increased the machine stripping time. The time before stripping was reduced by the wide ratio, but the increase in machine stripping time offset this to make total milking time about the same as the 1:1 ratio. The wide ratio also increased maximum rate of flow.

This work indicates that it is probably not desirable to change the pulsation ratios from the established 1:1 ratios presently being used in the United States. Another problem with this is that pulsators operating at wide ratios are rather complicated and difficult to design.

Several other interesting observations were made in the experiment. For example, with our equipment we found cows required 7 to 14 days to get used to the new machine or treatment. Total milking time declined until the seventh day, then remained constant.

Easier to train heifers . . .

Another observation was the fact that first-calf heifers gave a much greater response to a change in treatment than older cows. For instance, the total milking time was reduced to a greater extent in first-calf heifers when the vacuum level was increased from 12 to 18 inches of vacuum. This indicates first-calf heifers are more easily trained to milk faster.

Another finding: The maximum rate of flow was negatively correlated with the machine stripping time and yield. This would indicate faster-milking cows have a lower stripping yield than slower-milking cows. **THE END**

Effect of vacuum levels, pulsation rates, and pulsation ratios on the rate and completeness of milking.

Variable	Amount	Time before stripping	Machine stripping time	Total milking time	Maximum rate of flow
		(min.)	(min.)	(min.)	(lb./min.)
Vacuum (inches of mercury)	12	4.0	0.6	4.6	8.1
	18	3.0	0.8	3.8	10.7
	24	2.8	1.6	4.4	10.5
Pulsation rate (number per minute)	40	3.4	1.1	4.5	9.7
	80	3.2	1.0	4.2	9.9
	120	3.0	1.1	4.1	9.7
Pulsation ratio	1:1	3.5	0.9	4.4	9.4
	3:1	3.0	1.2	4.2	10.1

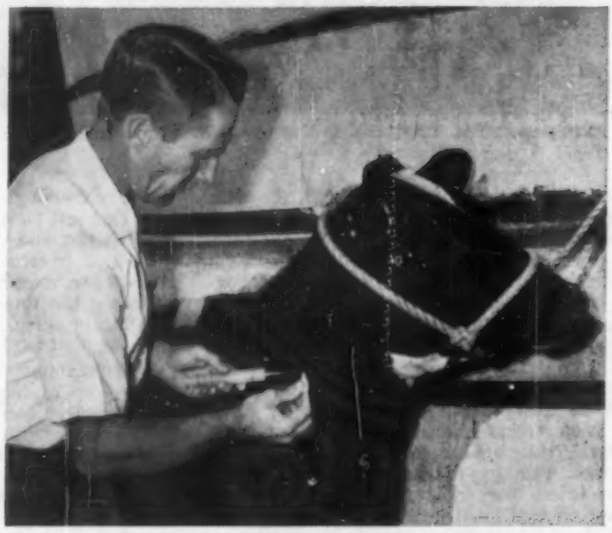
The author is assistant professor of animal husbandry at Cornell University.

HOARD'S DAIRYMAN ROUND TABLE

How we guard against disease

Mastitis, milk fever, acetonemia, calf diarrhea, and failure to settle continue to cause trouble even in well-managed herds. Here is how five top dairymen handle these problems.

TO PREVENT SCOURS in baby calves, buckets and waterers are cleaned and disinfected twice daily by Tom Kleinpeter, La. Stalls are 15 inches off the floor; calves are tied; rear of stall is open.



VACCINATING AGAINST BLACKLEG AND BANG'S is routine for Dr. D. G. Smokler, Tex. Bacterins may be used if calf diarrea is problem. A veterinarian, Smokler operates an 800-acre farm.

DESPITE earlier diagnoses, improved treatments, and the fact that such diseases as brucellosis and tuberculosis have been largely controlled, there are still many diseases and ailments robbing dairymen of profits.

For the benefit of our readers who are plagued with some of the common disease problems, we've asked five successful dairymen to discuss their herd health programs in this, the fourth article in our Hoard's Dairyman Round Table.

By way of introduction, here are some facts on the dairymen you will meet:

John D. Ware, Stowe, Vt.: A registered Jersey breeder who operates 200 acres with a full-time hired man. On DHIA last year, 45 cows averaged 9,505 pounds milk, 523 fat.

David G. Smokler, D.V.M., Dallas, Texas: A veterinarian who operates an 800-acre farm, has 200 head of dairy cattle of which about two-thirds are registered Holsteins. Last year, 120 cows averaged more than 13,000 pounds milk, 452 pounds butterfat.

N. D. Sommers and Son, Grove City, Ohio: This father-son partnership operates 220 acres with a registered Ayrshire herd of 60 head, 24 in milk. Last year on HIR, they averaged 12,250 pounds of milk, 492 pounds butterfat. Their 13-year average, with 21 cows in milk, is 11,309 pounds milk, 446 pounds fat, actual.

Tom Kleinpeter, Baton Rouge, La.: Operates Kleinpeter Dairy Farm with his father, Leon. They have a registered Guernsey herd which, with 64 cows on HIR last year, averaged 8,400 pounds milk, 420 pounds butterfat. Specialists in calf raising, they have lost just two in the past three years.

Isador Fleming, Califon, N. J.: Operates more than 200 acres with a registered Holstein herd numbering 92. Last year on DHIR, 54 cows in milk averaged 12,096 pounds milk, 447 pounds butterfat.

Here are our questions and their answers:

What diseases give you the most trouble? How do you diagnose them?

Ware: Milk fever; symptoms vary in individual animals. Some may be highly nervous, while others become lackadaisical and dull. There is a general coolness in the pinbones, hips, and ears as well as along the backbone. There is also a slowing down of all natural functions.

Smokler: Mastitis; traumatic gastritis; hoof rot; and various calf diarrheas. In mastitis, inflamed swollen quarter in an acute case; in chronic cases, pus cells on the strip cup. In traumatic gastritis, failure to eat, arched back, anxious expression, expiratory grunting, tenseness of abdominal muscles. In hoof rot, limp, swollen heel or toes above hoof. In diarrhea, watery stool, dehydration, depression.

Sommers: Acetonemia and milk fever. There is a distinct odor about the cow affected by acetonemia. We check the cow by the use of the urinary analysis tablet. Milk fever is detected by staggering and constipation.

Kleinpeter: Mastitis; cows failing to settle; and impaction. For mastitis, we use strip cup and watch for abnormal milk, as well as any inflammation or swelling. For slow breeders, we call our veterinarian, if the cow has not settled after the third service, and follow his recommendations. For impaction, the cow usually is listless and off-feed and shows signs of being constipated.

Fleming: Mastitis and acetonemia. We use a strip cup before each milking, also watch for lack of appetite and loss of milk in cows that have freshened recently.

What symptoms indicate a cow is sick? How soon do you call a veterinarian?

Ware: A dullness and lack of interest in everything surrounding her. Most dairymen, I believe, know their cows as individuals and are quick to detect when they are not "right." In most cases they are off their feed. If there isn't a marked improvement in the cow's condition within 24 hours, we call the veterinarian. We are most fortunate in this section to have the services of an excellent veterinarian. Early diagnosis of a disease makes the treatment easier for him and places the animal back in the milking string.

Smokler: 1. Failure to eat and failure to appear in milking barn at regular time.

2. Standing away from herd at feed bunk or hay racks.

3. Sudden drop in milk production.

4. Quite a lot depends on the owner knowing the attitudes and habits (normal) of each individual cow for early recognition of sickness. Many animals do not appear sick outwardly, unless one knows the cow's normal reactions. Fortunately, I am a veterinarian.

Sommers: Lack of appetite, dullness of the eyes, lack of alertness, and drop in milk production. Daily checking of milk weights can help here a great deal. At the first indication that a cow is sick we call the veterinarian. There is too much to lose by delay. Immediate treatment can get a cow back to normal production quickly.

Kleinpeter: An immediate drop in produc-

REMOVING MACHINE promptly is important part of mastitis control program of N. D. Sommers and Son, Ohio. They milk 24 registered Ayrshires.

JOHN WARE, Vt., believes early diagnosis is important in catching a cow that is "not right." He never makes an abrupt change in a cow's feed.

ISADORE FLEMING, N.J., finds mastitis and acetonemia most troublesome. Uses strip cup before each milking, watches for lack of appetite.

tion is noted and the cow usually goes off feed. She will also have a dull, listless look in her eyes with drooping ears and will go off by herself rather than stay with the herd. If we are sure of the disease, we treat it. If we are not sure, or if we do not get some response to our treatment at once, we call the veterinarian immediately.

Fleming: Lack of appetite, loss of milk, and unusual bowel movements. We call the veterinarian as soon as symptoms are noticed.

What is your mastitis control program? What do you do in case of a flareup?

Ware: Since udder and teat injury seem to us to be the main cause of mastitis, whether it comes from a teat that has been stepped on or from improper milking, we try to keep the cows as comfortable as possible in well-bedded stalls. A great deal of research has been done in this state on proper milking methods, preparing the cow, proper vacuum, and not leaving the machine on the cow after she is milked out. We inject the infected quarter after complete milking. If it is not cleared up within 24 hours, the injection is repeated. Complete milking of the infected quarter three or four times a day helps in most cases. If a cow is very sick, we call the veterinarian. We inject problem quarters when drying off the cow.

Smokler: Strip cup and occasional CMT (California Mastitis Test) checking; record of each cow's mastitis with treatment at dry-off period; narrow bore milk liners; quick milking; concrete floors to prevent udder damage in wet weather. In the event of a mastitis flareup, we provide treatment of quarters and systemic treatment if necessary. We use the CMT tests if there are a number of cases.

Sommers: We control mastitis by practicing regular milking, plus the use of individual paper towels dipped in a chlorine solution for each cow. We also pre-strip each cow before putting on the milker. It is also important to be on hand to remove milker as soon as the cow is milked out. In the event of a flareup, the first thing we do is to use the terramycin medication plus hot water and liniment application to the udder.

Kleinpeter: We wash, disinfect, and wipe udders with warm cloth within three minutes of milking. We do not apply milker until milk letdown; machine strip as soon as cow milks out, disinfect after removing machine; keep barns, lots and pastures free of objects on which cow might bruise her udder; do not crowd in loafing or feeding area; keep resting area dry and well bedded. Cows that have had mastitis are milked last. We rinse machine in water and disinfect after milking each cow. If cow does not respond to treatment, she is removed from the herd. We boil the inflations weekly in lye solution; alternate them weekly and check daily for damage. We also regularly check amount of vacuum at all stall cocks, keep vacuum lines clean, and keep pulsators clean and operating properly at all times. In case of a flareup, we identify the type of mastitis and treat accordingly. The cow is isolated and milked last.

Fleming: Besides using strip cup, we use a hot antiseptic solution to wash each udder before milking. If there is a flareup, we use penicillin and, if necessary, have our veterinarian give penicillin shots.

What is your program for controlling brucellosis? What would you do if you had a Bang's outbreak? What are the main causes of abortions other than those resulting from Bang's?

Ware: Calfhood vaccination certainly is the most important step in controlling brucellosis. If we do buy any females, which is very seldom, they must have been calfhood vaccinated and come from certified Bang's-free herds. As in controlling all diseases, we try to keep any visitors from walking in front of cows.

In the event of a Bang's outbreak, we would have no choice as the state would take over. Vermont has done everything possible to protect the dairyman as well as the economy of the state against a Bang's outbreak. Calfhood vaccination has been practiced for many years. Any suspicion of Bang's in the herd would be detected by the ring test which is taken periodically on our milk. A blood test on the herd would then be taken; reactors would be slaughtered and indemnity paid on them by the state. Our herd is practically 100 per cent calfhood vaccinated and certified Bang's-free so that we feel we have done everything possible in this respect.

The main causes of abortion other than those resulting from Bang's would be vibriosis and leptospirosis insofar as diseases are concerned. However, in many cases, I believe abortion has been caused by an injury of some sort, possibly where a boss cow has taken it out on another cow.

Smokler: Calfhood vaccination. In the event of an outbreak, we would test herd every 30 to 60 days to eliminate reactors and more often on suspicious animals to see if titre is rising. We would also disinfect maternity areas and fence off stock tanks.

Early abortions (30 to 60 days) are caused by breeding too soon following calving, and trichomoniasis, although we have not had this disease in our herd. Late abortions may be caused by leptospirosis, while some cows have abortions not caused by specific diseases.

Sommers: Vaccination of calves before they are 7 months old; blood test of adult animals periodically. If we had an outbreak, there would be nothing to do but sell the infected cows and try to find the source of the disease. You would hardly expect an outbreak with vaccinated cattle.

Other than diseases, the main cause of abortions would be injury to the cow. Some treatments for other things cause abortions.

Kleinpeter: We vaccinate all heifers and buy no cattle that are not vaccinated. We also test regularly to be sure we have no infection.

If there were an outbreak, we would clean and remove all bedding and manure from lots and buildings and thoroughly disinfect; change cows to different pasture, and plow pastures; test and butcher reactors.

Other causes of abortion are leptospirosis, uterine infections, early death of embryo, and external injuries.

Fleming: We vaccinate all calves between 4 and 8 months. In the event of an outbreak, we would cull and sanitize. Since we've had no experience, would have to find the recommended procedure.

Other than abortion from Bang's disease, it is caused from mishandling.

What experience have you had with vibriosis and leptospirosis?

Ware: I believe most dairymen have experienced breeding trouble. How much of this in our case has been due to vibriosis has been hard to determine. Whenever we have felt that it was present in our herd, we have had the cows treated by our veterinarian either shortly before or just after they are bred; that is, during their heat period.

Smokler: Within our own herd have not had either disease, but we vaccinate for leptospirosis annually.

Sommers: None as yet.

Kleinpeter: We have no vibriosis. We have had a few cases of leptospirosis which we treated with streptomycin. We vaccinate all animals in the herd.

Fleming: None.

How do you protect against milk fever?

Ware: We try to slow down the milk-making process of the cow at calving time by not milking her for the first 24 hours. The tremendous demand on the cow's system for calcium at that time often throws it out of balance, thus resulting in milk fever. We have tried feeding vitamin D to those cows with a history of milk fever with fairly good results. This must be done preferably during the seven days and at least four immediately preceding calving. It is difficult, for us at least, to determine the exact day of calving, a week ahead of time.

Smokler: A good grain ration with minerals at regular levels.

Sommers: In chronic cases, we have the veterinarian give the cow a shot of vitamin D about 3 or 4 days before freshening and hormones the day before. Otherwise, we try to feed the dry cow to prevent milk fever.

Kleinpeter: Feed extra calcium before calving and do not milk cows dry for several days.

Fleming: If we have a cow with a record

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of milk fever, our veterinarian treats her ahead of delivery.

How do you prevent cows from going off-feed? What is the best way to get cows back on feed?

Ware: We try never to make an abrupt change in a cow's feed. While we like to get a cow on full feed as soon as possible after freshening, this must be a gradual process, also. If a cow does go off-feed, we cut back on silage and grain, sometimes eliminating both entirely for a few days, and feeding hay alone. If she has been on pasture, she is kept in the barn. An appetite tonic also is given.

Smokler: No sudden change of feed or hay or silage, and also feed good-quality roughage. We try to determine the cause of going off-feed. If impaction, we give mild purgative (milk of magnesia).

Sommers: We always try to feed high-quality feed in reasonable amounts according to the cow's production and her eating habits. To get a cow back on feed, we use small quantities of different grain combinations, as well as different kinds of hay, ones they aren't used to having. If a cow has been sick, an arsenic pep pill, under veterinarian's supervision, will, many times, start her eating again.

Kleinpeter: We never make an abrupt change in feed and try not to overfeed. To get them back on feed, we treat them for whatever caused them to go off-feed. We use purgamix and appetizers by trying different kinds of feed, or with extra molasses.

Fleming: We try to give them a balanced feed program and watch for any cows that are fussy eaters. If they are off-feed it could be early symptoms of several things. To get them back on feed, we use molasses and change the feed, as well as use a tonic.

What precautions do you take against acetonemia or ketosis? What treatment have you found most effective?

Ware: Acetonemia has not been much of a problem with us. As soon as possible after freshening, our cows are on full feed. This probably has been a help in this respect. In the event of rapid loss of weight and appetite, our veterinarian is called and if diagnosed as acetonemia, the cow is treated. Response has always been very rapid.

Smokler: No particular precautions other than continuous grain feeding through dry period; we do not cut grain at calving time.

Sommers: In the past year, our veterinarian has been using a very effective hormone injection, given a day or two before calving.

Kleinpeter: We feed as much molasses as possible and treat with dextrose.

Fleming: We use a glucose solution.

How do you prevent bloat?

Ware: Bloat has been a real problem with us. I believe this is due partially to our method of pasturing. Because of limited acreage, our pastures are rationed, the cows remaining in a section only long enough to get filled up. They know this and for this reason, especially in Ladino, they tend to eat too fast. Whenever feasible, we feed them hay. This has helped but has not cured the tendency to bloat. We find some cows more susceptible to bloat than others.

Smokler: 1. Keep plenty of grasses in our legume pastures by nitrogen fertilization.

2. Feed hay before turning cows out.

Sommers: We feed our cows all the hay they will eat before we turn them out on grass in the spring.

Kleinpeter: We are on a year around program of corn silage and alfalfa and have very little bloat. We do not change grain or roughage suddenly and we treat with anti-ferments.

Fleming: We shorten the time on pasture of alfalfa or any other field crop with a tendency to bloat.

How do you handle the "slow breeder"?

Ware: Habitual slow breeders are culled. If a cow fails to settle on the second service, the veterinarian is called. After examination, if everything is found to be normal, she is treated with antibiotics during her heat period. Keeping records on heat periods is very important and any irregularities should be noted and the cow examined. I believe there is no one problem confronting us as dairymen which can eat into our profits so decisively as the slow breeder.

Smokler: If heat periods are normal and examination of reproductive tract indicates no abnormalities, we breed and infuse uterus with antibiotics. We use hormonal therapy on cows with too short or too long heat periods.

Sommers: If a cow is a habitual slow breeder, we have the veterinarian examine the cow and give treatment, if needed. Then, if she doesn't settle by the second service, she is examined again. We also use a young bull.

Kleinpeter: Slow breeders are examined at regular intervals by our veterinarian and we follow his recommendations.

Fleming: Our veterinarian treats her after checking for the possible cause.

What is the leading cause of calf scours? How do you prevent it?

Ware: The line between life and death in a newborn calf is a very thin one. We should be very careful that it comes into the world in a clean, dry pen, free from drafts. We should also make sure it receives the first milk or colostrum from its dam. A calf tablet containing vitamins A and D and a scour preventive is also given to our calves for the first 4 days. As the calf grows older, we make sure that the milk or milk substitute is warm when fed, and that no sudden changes take place in its diet.

Smokler: Unsanitary surroundings and failure to get colostrum milk. It's very important to have clean pens and clean utensils.

Sommers: Overfeeding would be the leading cause. This is the reason accurate weighing of every feeding is necessary. Unsanitary conditions and crowding would be another cause of scours. We try to prevent scours by weighing each calf's feed. We try to keep our stalls clean; we keep our calf nipple buckets clean.

Kleinpeter: Unclean feeding utensils and surroundings, also coccidiosis. All buckets and waterers are thoroughly cleaned and disinfected twice daily for baby calves. Entire calf pens of older calves are cleaned and disinfected at regular intervals, usually once per month.

Fleming: Unsanitary conditions. We are careful to disinfect all pens.

How do you prevent foot troubles?

Ware: We try not to have any mucky, disease-breeding spots where our cows are pastured. There is a brook through which the cows must walk going to and from pasture and I believe this has been an aid in preventing hoof rot. We also have our cows' hoofs trimmed.

Smokler: We fence off stagnant water areas and farm ponds. In closely-confined herds, antibiotics in feed may be helpful.

Sommers: We keep the cows' feet trimmed and try to keep our cows out of mud. We also try to keep cows from getting their feet bruised on gravel.

Kleinpeter: Remove all objects that might cause damage to cows' feet and have ample room for cows to exercise.

Fleming: Keep their feet as dry and sanitary as possible.

How are new animals handled that are brought into the herd?

Ware: Very few females are ever bought. Those that have been bought have come from calfhood-vaccinated and Bang's-free herds. They are not isolated other than keeping them in the barn for a day or two.

Smokler: Very few outside additions made. We try to know herd health history and we re-check brucellosis test, but do not isolate unless we suspect a disease condition.

Sommers: Very seldom do we bring in new animals. If we do, we isolate them for about three weeks. We bring them into the stanchions to help them get accustomed to the herd and their new surroundings.

Kleinpeter: New animals are isolated and closely observed for four weeks before going with the herd.

How do you handle the cow that doesn't clean?

Ware: Many years ago, I used to clean the cows myself, but since learning this can be dangerous, not only for the cow but to the untrained individual, I now call my veterinarian after 36 hours.

Smokler: Inject cow with antibiotics 12 hours after retention. If easily removed after 48 hours, I remove the placenta manually.

Sommers: Keep the cow isolated and call the veterinarian in 72 hours.

Kleinpeter: Twenty-four hours after calving, we try to clean the cow and treat with uterine boluses. If we cannot clean her, we call our veterinarian.

Fleming: Our veterinarian cleans her, then treats her with sulfa pills.

How often do you assist in calving?

Ware: I assist them if I am present and if the calf is being delivered in a normal position. If a cow is in labor for several hours and I feel the calf is not in a normal position, I call the veterinarian.

Smokler: Only when it is apparent the cow is having difficulty in delivery. I use a fetal extractor (calf puller) after determining that the calf is in proper position for delivery.

Sommers: We always try to be on hand when a cow is calving. Usually, we give some assistance. We use obstetric equipment.

Kleinpeter: When cows have labored for a short while, we examine them to be sure calf is in proper position. Sometimes we use oxytocin or assist cows that do not deliver in a reasonable time.

Fleming: Whenever necessary. I don't believe in letting the cow go too long in labor. I go into the cow to turn the calf, if necessary, and if we can't deliver, we call the veterinarian immediately. He has a jack-type arrangement.

What routine vaccinations do you make in your calves?

Ware: Calfhood vaccination for Bang's.

Smokler: Blackleg, Bang's, and sometimes bacterins, if calf diarrhea is a problem.

Sommers: The veterinarian makes calfhood vaccination for brucellosis between 4 and 7 months of age.

Kleinpeter: We vaccinate for shipping fever and blackleg, and worms at regular intervals.

Fleming: Just for brucellosis, have used no other as yet.

How often do you check dry cows and heifers?

Ware: At least twice a week. This is not only important in determining if anything is wrong, but in the case of heifers, tends to make them a more docile animal on entering the milking string.

Smokler: Two to three times a day on dry cows, once daily on heifers.

Sommers: Our heifer pasture joins our cow pasture and it is very easy to check on them daily. In the winter, they are in a feedlot and are observed several times a day.

Kleinpeter: All cattle are checked and counted daily. Heavy springers held close by are checked several times daily.

Fleming: Personally check once each week, but have someone else check each day.

THE END

$1,000 worth of fertilizer... free

TO PREVENT NITROGEN LOSS, add superphosphate daily, 2 pounds per cow, 100 for 50 cows.

Hauling manure pays good dividends if you handle it correctly. Studies show that a ton of good manure can increase your returns up to $6 or more an acre.

SPREAD MANURE DAILY on level land, even in winter if ground is frozen. Stay off hills, or most of the manure will wash away when snow melts.

by Larry Gerard

IN RECENT years, there has been a lot of talk about whether or not manure is really worth the trouble to haul it to the fields. The fact is, manure has to be disposed of and it takes very little extra effort to take advantage of its full value.

A survey of agronomists and farm economists across the country indicates that manure still has what it takes to grow the kind of crops, pasture, and feed that will keep dairy cows and other livestock producing at or near their maximum. But, you have to handle it right. If you don't, you're just wasting good fertilizer and that's money out of your pocket.

Many livestock farmers produce fertilizer that would carry a $1,000 price tag if it were bought in the bag. For example, take a dairyman with a herd of 50 cows and heifers. He will handle about 550 tons of manure a year.

This amount of manure would contain about 5,500 pounds of actual nitrogen, 2,200 pounds of phosphate, and 3,850 pounds of potash. If bought in the bag, this much plant food would cost about $1,155. However, in terms of increased yield, it probably is worth two or three times this amount.

Besides containing good amounts of nitrogen, phosphate, and potash, manure contains calcium, sulfur, and trace elements such as boron, manganese, copper, zinc. These elements are in the form readily available to plants.

After making a study of confinement hog-rearing systems, W. H. M. Morris, Purdue economist, reports that hog manure is definitely worth handling. "The fertilizer value of the manure alone paid from $1.50 to $7 per hour of labor as the size of the operations increased from 250 up to 1,400 hogs a year," he says.

The organic matter in manure is worth money, too. On the average, you can figure you are adding about 500 pounds of organic matter for each ton of manure spread. O. J. Attoe, University of Wisconsin soils specialist, says that when applied to a compact soil, addition of organic matter sometimes equals or even exceeds the value of plant nutrients.

When the value of organic matter is considered, he figures a ton of manure is worth about $6. This would make manure from a mixed herd of 50 cows and heifers worth about $3,300 — considerably more than enough to make it worth proper attention. Manure increases the porosity and the moisture-absorbing capacity of the soil and reduces the threat of erosion.

Connecticut research shows that heavily-manured soils hold about 55 tons more moisture per acre in the plow layer, and they are easier to cultivate.

In Pennsylvania tests, increasing humus content from 2½ to 3½ per cent reduced the power required to pull a 14-inch plow through clay soils by 25 per cent. These are things that rarely are included when discussing the value of this livestock by-product.

Worth $6.51 per ton . . .

Another good way to measure the value of manure is in terms of increased yields. Records kept by Iowa State University show an application of 8 tons of manure once in a 4-year rotation resulted in increases of 30.2 bushels of corn yields, 6.4 bushels in oats, and 1,400 pounds of hay legumes during the following rotation. Figuring corn at the present support price of $1.20 per bushel, oats at 62 cents, and hay at $17 a ton, the increased yields are worth $52.11 per acre, or $6.51 per ton of manure.

However, don't get the idea that you should try to get by without using any commercial fertilizer. There just isn't enough manure produced on a farm to provide hungry soil with all the plant food needed. You need commercial fertilizer to supplement farm-manufactured plant food on fields which require higher amounts of certain elements and on fields where there isn't enough manure to go around. The point is that manure is a valuable fertilizer and shouldn't be wasted.

Minnesota extension soils specialist, Curtis Overdahl, says they applied 8 tons of manure per acre to first-year corn, in a 4-year rotation of oats, hay, corn, corn, at the Nicollet Experiment Station. A 6-year average on the check was 68.4 bushels per acre. This 8-ton-per-acre application of manure on the first-year corn, gave a yield increase of 15.1 bushels per acre or a total yield of 83.5 bushels per acre. On second-year corn the carryover gave an increase of 7.3 bushels per acre.

Illinois studies show that manure is worth the most when applied on sandy and light-colored soils. When manure was applied at rates ranging from slightly more than 1 ton on sandy soil to almost 4 tons on productive, dark-colored soils, corn yields jumped an average of 19 bushels per acre on the dark-colored soils, and 21 bushels on light-colored soil during the first year after application. On sandy soil, yields jumped a whopping 32 bushels per acre.

In University of Missouri studies, application of manure at the rate of 3 tons per acre increased yields of wheat about 3 bushels for each ton of manure applied.

Apply up to 20 tons . . .

Attoe says that on corn land it may pay to apply as much as 20 tons of manure per acre. Where adequate starter and nitrogen fertilizers are applied, lesser amounts of manure are sufficient.

If you could handle manure so there were no losses, you would return to the soil about 75 per cent of the nitrogen, 80 per cent of the phosphorus, and 90 per cent of the potassium contained in *(Turn to page 1217)*

OPEN-BOTTOM AUGER is simple to build. Silage builds up under auger until entire bunk is filled.

Select the bunk feeder that fits your farm

This labor-saving device is available in many types, sizes, and shapes. Since it is a long-range investment, careful attention should be given to selection.

by Melvin E. Long

WHEN you install a feeding system, one of the major items is the auger or other devices used to distribute silage and concentrate in the feed bunk. In this article, we discuss the factors you should consider when planning a bunk-feeding system, as well as types of available equipment.

In an attempt to compare the cost of a mechanical bunk feeder with the cost of a bunk-feeder wagon and fence-line bunk arrangement, be sure to consider these facts. For dependable, all-weather use, you will need a good-quality driveway along the entire length of one side of the bunk. Although fence-line bunks eliminate the cost of a fence, the cattle can use only one side. Thus, you will need twice as much length per head, as compared to a bunk in the lot.

In general, the fence-line and bunk-wagon arrangement is considered best suited for very large layouts, widely scattered feed lots and buildings, and for use with horizontal silos.

Since the bunk-feeding system usually is part of a long-term investment, be sure to consider the possibility that you may wish to expand your feeding arrangement during the life of the equipment now being installed.

Oftentimes, by good planning you can arrange to reduce the cost of future additions without increasing the cost of your present new construction or installation. On the other hand, lack of planning may result in the construction of a system which makes future expansion completely impractical.

Also, think about access and ease of manure cleaning with your tractor. The feedlot should be arranged so that it does not interfere with the silo-filling operation.

A roof over the feed bunk helps keep feed and equipment dry. In some cases, the roof is extended to provide protection for cattle while they are eating. In rainy and snowy weather cows will eat more silage under a roof, even if only their heads are kept dry.

If the bunk is placed on a step which is 6 to 12 inches high and extends 1½ to 2 feet out from the bunk, manure droppings into the bunk will be reduced.

For calves and heifers allow one foot of bunk space per head. For dairy cows, the need is about two feet of bunk space per head, if they are all to eat at once.

AVAILABLE TYPES

Each type has certain advantages, as well as limitations. The best type for your situation depends upon individual requirements.

Open bottom . . .

This is probably the most widely used type. It is usually an 8- or 9-inch-diameter auger with a 2 by 10 plank on each side. In operation, the feed falls out the bottom of the auger, starting at the "near" end. As the feed builds up to the level of the auger, it forms a "bottom" which causes subsequent feed to be carried farther before it drops into the bunk. This process continues until the feed reaches the "far" end of the auger.

Total amount of feed distributed can be changed by adjusting the height of the auger-and-plank assembly above the feed bunk.

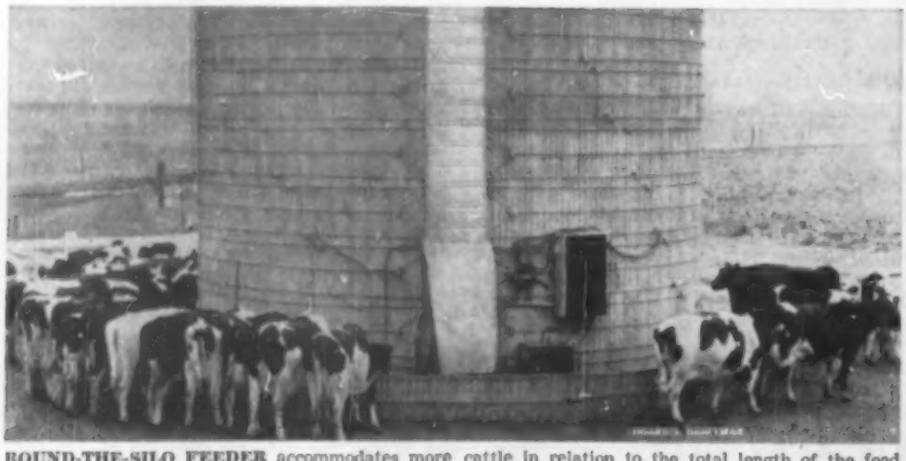
Primary advantage of this type is its simplicity, which reduces maintenance problems and helps to keep down the initial cost.

Limitations include its lack of ability to distribute different rations to two or more groups of cattle. For best results, if silage and concentrate are to be blended, the concentrate must be metered in proportion to the flow of silage from the unloader. In practice, some farmers simply fill the bunk with silage and then run in the concentrate. The difference in particle size between the silage and concentrate tends to permit concentrate to escape from the auger and mix with silage.

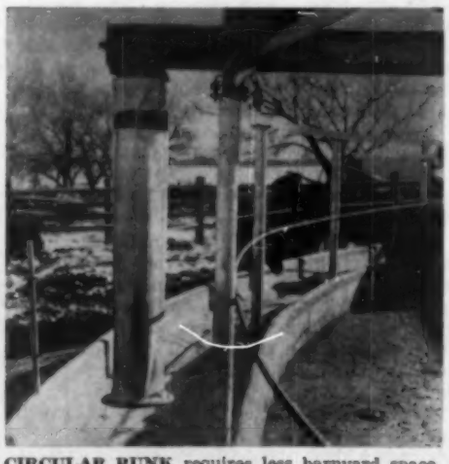
In some feeding situations, the fact that the bunk is filled progressively from one end may cause crowding by the cattle.

The open-bottomed auger is arranged to

DEFLECTOR BOARDS and rotatable tube permit feeding separate rations on either side of bunk.



ROUND-THE-SILO FEEDER accommodates more cattle in relation to the total length of the feed bunk. Only a 1½-to 2-horsepower electric motor is required to move silage from chute to feeder.



CIRCULAR BUNK requires less barnyard space. A motor moves auger along curved overhead track.

turn about 200 r.p.m. (revolutions per minute). At this speed, power required is about 1 horsepower for each 20 to 25 feet of auger length.

Enclosed auger . . .

In this arrangement, the auger is enclosed either in a tube which completely surrounds the auger or in a trough, to which a cover can be added for protection, if desired.

Small holes or slots are arranged in the side of the auger enclosure. The holes nearest the feed end are highest. The holes are arranged so that a small amount of feed from the top of the "stream" drops out each hole.

Thus, within a short time after the auger is started, feed is dropping from all the holes.

In the enclosed auger, the holes are adjusted by rotating the tube. The trough-type auger has sliding gates.

Total amount of feed distributed depends upon the length of time of operation. Silage and concentrate need not be fed into the auger at the same time, because the auger will distribute the concentrate along the entire length of the bunk.

With either type enclosed auger, a diverter can be used to direct the flow of feed to the opposite sides of a divided bunk. Thus, by proper arrangement of lots and feed bunks, the same auger can be used to distribute different rations to two groups of cattle. In addition, the adjustable openings could be arranged so they could be controlled in separate groups along the length of the auger. This would permit dividing the space on each side of the auger into more than one lot, each of which could be supplied a different ration.

Advantages of the enclosed augers include the ease with which delivery can be controlled, both in amount and place in relation to the auger. Additionally, uniform delivery along the length of the auger reduces crowding.

The primary limitation of this type auger is the increased cost as a result of its greater complexity. Also, extra care will be required, especially in cold weather operation, to make sure auger is permitted to empty completely before it is shut off. Otherwise, silage may freeze and cause start-up troubles.

At auger speeds of about 200 r.p.m., the power requirement in a tube is about 1 horsepower for each 30 to 40 feet of auger.

Rotary feeders . . .

One of the least complex but complete systems can be obtained by arranging the feeder around the silo. Here, the feed bunk is constructed against the silo.

A steel bar, to which rakes or paddles are attached, also encircles the silo. A small motor slowly rotates the bar around the silo as the silage drops from the chute into the bunk.

Advantages of this arrangement include its simplicity and low power requirements — about 1½ to 2 horsepower. The circular arrangement also allows more cattle in relation to the length of bunk.

Limitations are lack of flexibility in feeding different rations to more than one group of cattle, impossibility of expansion of capacity, plus the disadvantage of working in the feedlot while filling the silo.

Swinging auger . . .

In this arrangement, an elevated, horizontal auger swings around a central post to convey the feed to a circular feed bunk. At the feed bunk end, an elevated track supports the auger. A separate, small electric motor moves the outer end of the auger along the track.

The overhead auger is long enough that the required curvature of the feed bunk will permit cattle to eat from either side of the bunk. The bunk can extend over as much as three-fourths of a circle, leaving the remaining one-fourth of the circle for a building and for access space for the cattle to enter.

A separate auger is required to deliver the feed to the inner end of the swinging auger. At the outer end of the swinging auger, the feed drops by gravity into the bunk through a flexible spout.

The 50-foot horizontal auger can supply a feed bunk 225 feet long, when it is arranged as three-fourths of a circle.

The small swing motor at the outer end of the auger is reversed by a switch which is tripped by a small stop attached to the overhead track. The blocks can be positioned to limit the swing to any desired portion of the bunk. Thus, by properly setting the blocks, the auger can deliver feed separately to two different lots along the feeder.

Concentrate can be metered into the swinging auger along with the silage, or the silage can be distributed first and then the concentrate spread separately.

Primary advantages of this type outfit is the length of bunk that can be filled in relation to the length of the auger. This arrangement reduces power requirements. A 3-horsepower motor powers the auger, while a ¼-horsepower motor moves the outer end along the track.

Expansion of capacity is very easy with the three-fourths-of-a-circle length of bunk. No machinery is added, only the bunk and the overhead track.

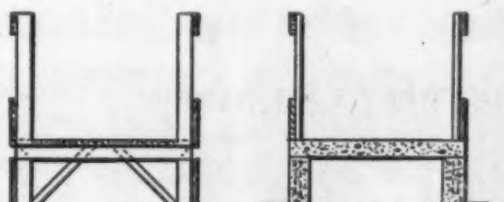
The primary limitation is the restriction of the length of the circular bunk to three-fourths of a circle. If additional length beyond this is needed, it is not practical to add it to this type outfit. However, with 2 feet of space allowed per cow, a 225-foot bunk will handle 225 milk cows.

Conclusion . . .

- **When comparing types of feeders, remember that there is no "best" one, rather there is only a range of how nearly each one meets your particular requirements.**
- In planning a bunk feeder system, it is often a good idea to visit existing systems in your area to benefit from their experience. In addition, your college extension agricultural engineer or your county extension agent probably can recommend sources of information and advice to help you in making the required decisions for your own particular case.

THE END

How to build a mechanical bunk feeder



If you wish to change to drylot or barnyard feeding, select the bunk and auger that will best fit your particular feeding setup.

by Marshall F. Finner

IT IS highly desirable that the bunk be located on a paved yard with good drainage, and be oriented so its center line follows the general slope of the lot. If the yard is not paved, it is well to plan to pave an area along the sides, back from the edges of feed bunk, at least 10 feet and preferably more. Several farmers have reported good results with 5 to 5½ feet of pavement and then a 7- to 8-inch step which acts as a gutter.

Most efficient use of the bunk can be gained by allowing animals to feed on both sides. If all animals are to feed at the same time, then about 22 to 24 inches of feeder space is needed per animal. If feed is always available free-choice, the space requirement can be reduced to as little as 6 inches per animal.

In selecting a bunk design there are a number of points to look for. It is well to plan to keep the floor of the bunk relatively low, particularly for young animals and smaller breeds. About 20 to 24 inches from the floor of the bunk to the pavement is recommended.

A well-supported guard rail, positioned 24 to 30 inches above the side of the bunk, will prevent animals from climbing into or over the bunk. The sides next to the animals should be free of obstructions and extend flush to the pavement to aid in scraping the pavement either by hand or tractor.

The bunk itself may be made of concrete or wood. Of course, concrete provides a much more durable and permanent type of construction but, obviously, cannot be moved as can a wood feeder.

Suggested plans for both concrete and wood bunks are shown. Since the feeders usually are made in 10-foot lengths, the bunks should be made in 10-foot increments, as well. Costs for materials are about the same for wood or concrete and will be about $4 to $4.50 per foot of length, if materials are purchased new. These costs can be reduced with the use of home-sawed lumber and salvaged steel. However, forming materials for the concrete bunk will increase its cost slightly above wood.

In certain localities, precast concrete bunks are available for about $7 to $8 per foot. Of course, these are ready to install and, in some cases, are delivered and installed, thus saving the labor involved in construction.

The life of a wooden bunk can be extended greatly by treating the lumber with a pentachlorophenol solution.

Pressure-treated lumber can be purchased from your dealer. It may run slightly higher in price but you wouldn't have the bother of applying the treatment yourself. **THE END**

The author is an assistant professor of agricultural engineering, University of Wisconsin.

Hoard's Dairyman Plan Service,
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EDITORIAL COMMENT

W. D. HOARD FOUNDER

"And the Word was made flesh . . ."

IN THE BEGINNING was the Word, and the Word was with God, and the Word was God.

The same was in the beginning with God.

All things were made by him; and without him was not any thing made that was made.

In him was life; and the life was the light of men.

And the light shineth in darkness; and the darkness comprehended it not.

John 1: 1-5

AND there were in the same country shepherds abiding in the field, keeping watch over their flock by night.

And, lo, the angel of the Lord came upon them, and the glory of the Lord shone round about them; and they were sore afraid.

And the angel said unto them, Fear not: for, behold, I bring you good tidings of great joy, which shall be to all people.

For unto you is born this day in the city of David a Saviour, which is Christ the Lord.

And this shall be a sign unto you: Ye shall find the babe wrapped in swaddling clothes, lying in a manger. *Luke 2: 8-12*

AND THE WORD was made flesh, and dwelt among us, (and we beheld his glory, the glory as of the only begotten of the Father,) full of grace and truth. *John 1:14*

COOPERATIVES ARE ESSENTIAL

I CAN think of no greater economic problem facing agriculture than its inequality in bargaining power as compared to other segments of our economy.

However achieved — whether it be by government protection, by monopolistic practices, or by the amassing of great capital and organization — the fact remains that labor, business, and other segments of our economy are infinitely stronger — whether it be at the bargaining table, in the management of their supplies, or the administration of their prices.

Our agriculture is known for its ingenuity. We have no peer in productive capacity. We are giving our nation the finest, most abundant, and safest food supply of any country in the world, but too much of the time at strictly bargain basement prices.

One of the most effective economic tools available to help us achieve this equality is the cooperative. It is business democracy in the finest sense of the word. It is private enterprise in the truest sense and, thus, the exact antithesis of communism and socialism.

Through cooperative effort, our farm enterprise can maintain its freedom of ownership and control. Through cooperation farmers can become larger and stronger sellers in our major markets. Through cooperatives farmers can bargain effectively with the giants of food distribution. Through large and effective cooperatives, I believe there can be effective supply judgment exercised in agriculture; with enabling legislation, yes, but without government domination. Our cooperatives can be the avenue for attaining economic equality. Group action backed up by the tools of adequate capital, facilities, and selling skills is essential to successful agriculture.

— Truman Torgerson

WHY DAIRY IMPORTS ARE ISSUE

FROM time to time readers will note in our Washington Dairygrams column the concern of dairy leaders over attempts to evade U.S. agricultural import quotas. A prime example was the importation of over 10 million pounds of Colby cheese in the first six months of 1961 in spite of an annual quota on Cheddar of four million pounds.

Farmers should be concerned about these evasion maneuvers because they jeopardize the markets for U.S.-produced dairy products and have a depressing effect on price. Because we have a support program, the net result is to throw more cheese into government storage and impose a burden on the general tax structure.

At the present time, it is necessary for a lengthy investigation to be conducted by the tariff commission before these evasive maneuvers can be halted. The comptroller general of the United States has recommended that the power of the Secretary of Agriculture be restored to halt such imports without a time-consuming investigation. Congress should reinstate the Secretary's powers, those under which he operated through the Defense Production Act of 1950. Unless Congress acts, the products of much cheaper foreign labor will continue to undermine our price structure here.

A BASE IS NOT A QUOTA

NO RESPONSIBLE person in the dairy industry has ever proposed placing a limit on milk production by any farmer. And yet the careless use of the word "quota" has given thousands of dairymen this impression. In some instances, we are convinced that the word "quota" has been used deliberately to discredit various self-help proposals which have been advanced to bring supply and demand into balance.

Speak of quotas to any farmer today and he immediately thinks of the absolute limitations on acreage of wheat, cotton, or any other of the basic commodities. Naturally, when the term "quota" is used in connection with the various dairy proposals which have been discussed, he assumes a similar limitation is being considered. This is absolutely untrue.

Actually, the word "base" is the only word which should be used in discussing any of the proposals we have reviewed. There are no limitations but, instead, guarantees of fair prices and returns on the base amount of milk. Every farmer understands the use of bases. A dairyman can still produce without restriction or limitation. The only provision is that milk produced in excess of base will bring a lower price. This acts as a deterrent to overproduction, flooding of milk markets, and resultant lower prices.

Every farmer should understand and appreciate this very important distinction. In our opinion, quotas are unnecessary, impractical, and undesirable in the dairy industry. On the other hand, annual negotiable bases, in most fluid milk markets, make good business sense.

BRITISH DRINKING MORE MILK

THOUGH the industrial worker in the United Kingdom must work 13 minutes to earn enough money to buy a quart of milk compared to the U.S. industrial worker's 7 minutes, per capita consumption of fluid milk is climbing in the United Kingdom while it is on the decrease in the United States. In a report just received we learn that the per capita fluid milk consumption in the United Kingdom last year was nearly 324 pounds, about 2 pounds more than in the previous year, 107 pounds more than prewar years.

Compare the British record with that here in the United States. Our per capita consumption was only 287 pounds last year, 5 pounds less than in the previous year and only 23 pounds more than in prewar days.

Butter consumption overseas is down just about the same amount from the previous year but the per capita consumption last year was 18.1 pounds compared to our sorry showing of 7.6 pounds and yet the British worker must put in 53 minutes of labor to earn enough to buy a pound of butter while the American worker only puts in 21 minutes.

We approach the British only in cheese consumption. Our per capita use is 8.4 pounds and the British consumption is 9.7 pounds.

And still there are many people in this country who cry that the only solution to the consumption problem here is to further decrease price!

Questions from Our Readers

Brake adjustment

Is there an easy way of equalizing the adjustment of my tractor brakes so that when I lock them together for use on the highway, they do not throw the tractor sideways?

Kansas **S.B.O.**

Jack up both rear wheels. Start the engine and engage the transmission. Lock the brake pedals together and apply the brakes. Usually, one wheel will stop and the other one will turn faster. Tighten brake on the one that turns faster (or loosen opposite brake). When both wheels can be stopped, brakes are adjusted evenly.

What causes foaming?

The oil in my tractor hydraulic system foams and bubbles out the reservoir vent. What cause this?

Tennessee **A.E.S.**

There are two primary causes of foaming — air and fluid composition. Low oil level in the reservoir may permit the pump to draw air. Or, a leak in the suction line between the reservoir and the pump will permit air to enter the system.

Properly compounded hydraulic fluids contain an antifoam agent to prevent foaming under normal operating conditions. Before buying hydraulic fluid, check to make sure that it does contain the necessary antifoam ingredient.

Tractor oil change

Recently, I purchased a new tractor. Is it really necessary to drain the oil after only 20 hours of use, as the manual recommends?

Vermont **T.A.B.**

Yes, if the manual so recommends. However, such a short oil use applies only to the break-in oil supplied in the new tractor. No doubt the manual recommends much longer intervals for changes thereafter.

The break-in oil does not necessarily lose its "oiliness" in 20 hours of operation, but draining it helps to clean the internal parts by getting rid of metal particles that wear off during the break-in period.

Electric motor trouble

Why is it that we seem to have so much trouble with electric motors in the barn and other farm buildings, when the motors on the appliances in the house are so trouble free?

Wisconsin **M.D.T.**

In a word, operating conditions." The farmstead motors operate under much more severe conditions of dust and moisture—two of the great enemies of motor life. Additionally, there is a tendency to overload many farmstead motors in the hurry to get the work done, while in many appliances you have little control over the load on the motor.

Magnetic plugs worth the cost?

Are magnetic drain plugs of any value when I already have oil filters in my hydraulic system and on the tractor engine?

Wisconsin **H.A.O.**

Magnetic plugs collect iron or steel particles. Although the oil filter probably would trap these particles, oftentimes their weight prevents them from being pumped to the filter.

With the drain plugs located at the lowest point in the system, this is the logical place to trap the heavy iron and steel particles.

Magnetic plugs are well worth their small cost and are available as replacements, if you do not have them on your tractor.

All questions were answered by Melvin E. Long.

ED . . . **and EMMA**

". . . and the salesman told me it's guaranteed not to drip!"

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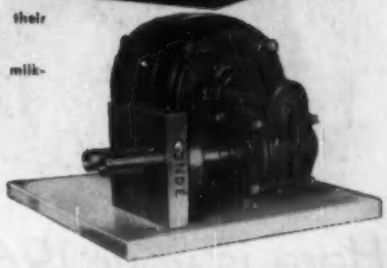

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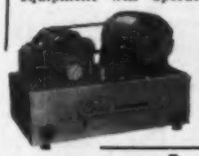

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. . . index to profitable dairying!

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W. D. Hoard and Sons Company, Publishers

Fort Atkinson, Wisconsin

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Dairy Farm Home

Last call for CHRISTMAS

Here are a few holiday hurry-ups that may add a bit of needed cheer to your last-minute Christmas preparations.

by Marian Pike

IF, IN your family, there is someone who pops up at the last minute with, "Oh, I forgot to tell you I promised to bring a dozen popcorn balls to the class party," don't explode. Beneath picture at right is a recipe for popcorn balls that is quick and easy.

If your Christmas tree looks a little skimpily decorated, wrap popcorn balls in colored foil or cellophane for ornaments. When children come, give them popcorn balls as impromptu gifts. The cinnamon apple cookies shown are "good keepers." Serve them at home or give them in attractive containers.

Many cookie doughs can be made up ahead of time. Tightly wrapped in the refrigerator, dough will keep for weeks; in the freezer, for months. Chilled doughs may be baked as they come from the refrigerator; frozen doughs need about 1 hour of softening at room temperature.

Try covering cookie sheets with foil when you bake. As one pan is baked, slip foil off and put on another cookie-dotted sheet. It saves time between batches; helps on pan washing.

Which vegetables?

What vegetables will you serve with your Christmas dinner? Probably the mashed potatoes pose the biggest problem. To avoid that last minute rush, you might try this reasonably accurate facsimile of mashed potatoes.

Potato Puff

4 cups seasoned mashed potatoes
½ cup milk
2 eggs, separated
¼ cup melted butter
1 teaspoon grated onion
2 tablespoons cut parsley
2 teaspoons salt
Pepper
Paprika

To the potato add the hot milk, beaten egg yolks, butter, onion, parsley, salt, and pepper. Mix well.

Beat egg whites until stiff and fold into the potato mixture. Pile lightly into a buttered baking dish and sprinkle with paprika.

Bake in a moderate oven (375 degrees) for about 33 minutes, or until lightly brown on top. Put under broiler 3 or 4 minutes if deeper brown is desired. 8 servings.

If you're worried about oven space, remember that your turkey should come out of the oven half an hour or so before you are ready to carve it so it firms up for easier carving. You'll have had the oven shelves as far apart as possible to make room for the turkey. Now move them closer together. There will be room for the potatoes, as well as a vegetable casserole and rolls, to warm on the second shelf.

Onions are traditional . . .

When preparing onions, it is difficult to believe they are a member of the lily family. If onions are sliced before peeling, however, the skins can be removed without causing tears.

If you wish whole onions to bake, boil, or stuff, either peel them under water or pour boiling water over them. Let them stand for a few minutes; then peel. Boiling water loosens the thin layer of skin which usually sticks tight.

For oven-creamed onions . . .

Choose onions of dollar size. Peel. Cut an X on tops or run a thick skewer through the middle to keep centers in. Drop onions in boiling salted water and cook until just tender. Drain at once.

Turn into buttered baking dish. Pour over light cream to half cover the onions. Top with buttered bread crumbs. Sprinkle with paprika.

Heat in 375-degree oven until bubbly. Or, prepare the day before; cover well; and store in refrigerator. An hour before heating time, let stand at room temperature; then heat about a half hour in oven until warm through. Time varies depending on starting temperature of onions.

Canned or frozen vegetables?

Perhaps with all you have to do to get ready for a big holiday dinner, you should rely on vegetables that take little preparation. The homely vegetables you use every day become festive with some little addition.

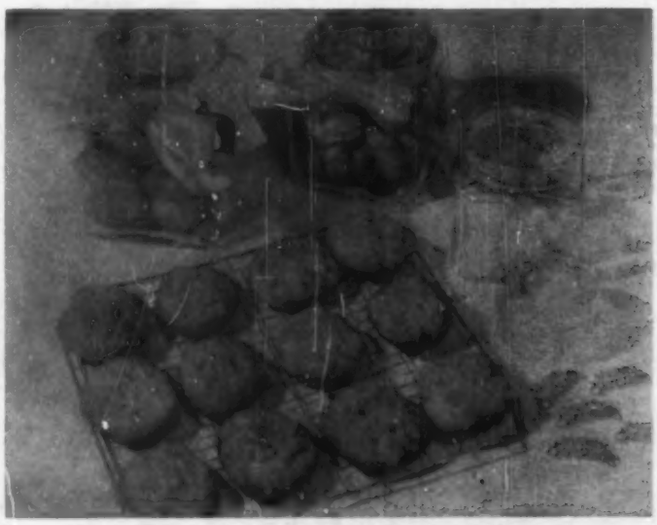
To peas, add little canned onions or mushrooms. Top off green beans with toasted, slivered, buttered almonds. Spice up buttered carrots with a whiff of nutmeg and brown sugar. Drain canned beets and heat gently in a little vinegar and sugar. Then just before serving stir in some sour cream. **THE END**

Easy popcorn balls

½ cup corn oil
½ cup unpopped popcorn
½ cup light corn syrup
½ cup sugar
½ teaspoon salt
few drops food coloring (optional)
one of the following:
½ cup chopped nuts or chopped candied fruit or crushed peppermint candy or ½ teaspoon lemon or vanilla extract

Heat the corn oil in a heavy 10-inch skillet or 3-quart kettle (I used pressure sauce pan) over medium heat for 3 minutes. Add popcorn. Cover, leaving the lid slightly off center for the hot air to escape. Shake frequently over medium heat until popping stops. (Do not pop more than ⅓ cup corn at a time.) Remove any imperfectly-popped kernels.

Place the corn syrup, sugar, and salt in a saucepan and cook over medium heat until the sugar is dissolved. Add the red or green coloring and flavoring you desire, and stir. Pour over the popcorn, mixing thoroughly until all the corn is coated. Use butter on the hands and shape into 12 balls. (Do not despair if you feel it is not going to stick together at first. It will. Coated popcorn has to cool a little before it will pack lightly into balls. But don't overdo the cooling, of course.)



Cinnamon apple cookies

(for gifts or to have on hand)

½ cup shortening
⅔ cup sugar
2 eggs
1 cup sifted all-purpose flour
1 teaspoon baking powder
1 teaspoon cinnamon
½ teaspoon nutmeg
½ teaspoon salt
1 cup rolled oats
1 cup chopped canned apple slices or thick apple sauce
1 cup chopped nutmeats

Cream together shortening and sugar. Add eggs, one at a time, beating after each.

Sift together flour, baking powder, cinnamon, nutmeg, and salt; mix with oats.

Add alternately with apples to creamed mixture. Add nuts; mix.

Drop by rounded tablespoons on buttered baking sheet. Bake in moderate oven, 350 degrees, 15 to 18 minutes. Makes 3 dozen cookies.

From Day to Day

by Lois J. Hurley

I HAVE been much happier and well-adjusted since I sat down, thought the thing through carefully and admitted, finally and forever, that Christmas has two faces: Religious and social.

First, there are the weeks of getting ready for it all; the shopping, the wrapping, the addressing of cards, the baking, the decorating, the general air of expectancy that builds up. Then, there are the days and nights of fun and feasting with family and friends in the period between Christmas and the new year.

And the climax or the high point of take-off, whichever you wish to consider it: The night when Christ was born, a mystery date, actually, but one on which we have settled for December 24.

Both phases of the holiday season are important and help contribute to the wonder and joy of the occasion. I used to worry about the secularity of events in which I participated but, having come to grips with myself, as I said, I just relax and enjoy it all. After all, the season of Yule goes back centuries as a time of jollification.

The two symbols of Christmas are, of course, the Christ Child and Santa Claus. Around these two figures, disparate in appearance but not really so different in nature and character, both standing for unselfishness and love through giving of gifts and self, tradition, song, and story have developed and been used by the ages.

"Silent Night," the best-loved Christmas song ever written, is a never-failing pathway that takes our spirits into the hushed and holy atmosphere of the Babe in his lowly manger in Bethlehem.

One of my treats to myself this fall was a season ticket to a series of travelogues. The first one was on Austria and in one of the sequences we were taken to the ancient church in which "Silent Night" was first introduced as answer to what the pastor thought to be a too-thin Christmas program.

In the travelogue, "Silent Night" was played in this little Austrian church on the organ; the camera picked up the faces of the Christmas Eve worshippers, then panned out to pick up softly falling snow over the mountainous Austrian country-side. The big auditorium full of people was so still you could have heard a pin drop; "Yon Virgin Mother and Child, Holy Infant so tender and mild" speaks a traditionally tender message to all hearts.

In the realm of written words about Christmas, "The Night before Christmas" stands first. There are various theories about Santa Claus; some say he is really an Asia Minor bishop named St. Nicholas who lived back about 1,600 years ago. But all of us know that he is the jolly, whiskered, red-suited old boy from the North Pole that Clement Clarke Moore thought up as a trifling jingle to amuse his six children, December 24, 1822.

Moore was a professor of oriental and Hebrew literature and dealt in such projects as analysis of Thomas Jefferson's ideas about religion and a lexicon of the Hebrew language, complete with explanation of the entire vocabulary of the Psalms. But who knows or cares about that, today?

Rather, we continue to love the lilting verses he composed to the jingling of bells on his sleigh as he drove from New York City to his home at Chelsea Farms, that snowy Christmas Eve. His sleigh was full of goodies and gifts for his children; his heart was high in anticipation of their happiness. The rhythm of the sleigh bells furnished the meter and St. Nick was furnished by Moore's memory of a fat, jolly Dutchman who worked around his community at odd jobs.

His own children loved the poem; a young lady who visited the family read it, asked permission to make a copy which her father published in the Troy, New York, Sentinel, he being editor. Moore was very displeased, even though the poem appeared anonymously. During the next 20 years, it was frequently reprinted, was included in a New York book of poetry and 22 years after he wrote it, Moore reluctantly gave it a place in his own volume of collected poems.

Nobody has done much tampering with the image of jolly St. Nick and his eight tiny reindeer who fly miraculously over the rooftops each Christmas Eve leaving the gifts each good boy and girl has asked for. There was a musical rumor, a few years ago, that one of the reindeer fell ill and had to be replaced by Rudolph who had a red nose that guided the sleigh through the dark night, but nobody took it seriously.

I've been afraid that somebody would suggest, in song or rhyme, that Santa now rides a guided missile on his December 24 rounds, or that he gets lost in outer space and fails to arrive or that he collides with Echo 1 or other satellite, to the disaster of all concerned. But so far, our fat-bellied friend has been left in comparative peace and I stand ready to clobber anybody who attempts to disturb Santa's status quo.

So, in the happy days that lie just ahead of us, I feel there is a place for the holly bough and the wassail bowl; for the turkey and the cranberry sauce and the sage and onion stuffing; for the presents, the parties, the pretty new dress; for the cards that carry the goodwill greetings of friends; the singing, the visiting.

It's all in celebration of a significant birthday, remember? Bow your spirit in Bethlehem on Christmas Eve; let it rise up, rejoicing, on Christmas morning at the glad tidings that joy has come to the world. Carry the promise and expectancy of love and goodwill in your hearts through the holiday season. Merry Christmas!

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Young Dairymen — *Getting started in dairy farming* — No. 36

Started by... father and son working together

CRIMSON CLOVER and Coastal Bermuda is inspected by Larry, on right, and the author, W. R. Tye. All forage is produced on the farm.

Using production records and a good roughage program, this young Georgia dairyman and his father built a top dairy herd.

by W. R. Tye

YOUNG men are still being attracted into dairy farming. Larry Tankersley of Appling, Columbia County, Georgia, a 21-year-old former 4-H'er, is a good example.

My first contact with Larry was when he was 10 years old and he joined the Winfield Community 4-H Club. Larry talks very little now but at the age of 10 he was almost too timid to say a word. However, when he did talk, his favorite subject was dairy calves.

Larry's father, E. A. Tankersley, was producing Grade B milk and growing cotton as his main source of cash income. During that year, 1952, he built a nice dairy barn and started producing Grade A milk for market.

Mr. and Mrs. Tankersley reared four children on their 210-acre farm.

Partnership after high school . . .

When Larry finished high school in 1957, his father gave him the choice of going to college or becoming a full partner with him on the farm. Larry's choice was the partnership now operating under the name of E. A. Tankersley and Son.

Larry shares equally in the profits and as replacements come into the herd, he will share equally in the cows. He has a 10-year option to buy half the land and also an option to buy his father's interest if, and when, it is for sale.

After three years Larry and his father agree that they are well satisfied with this kind of a partnership.

Larry, of course, did his part in response to his father's interest in him becoming a dairy farmer. Larry's mother, "Miss Viola," says, "Larry was always a good 4-H'er and now has developed into a most dependable and responsible young man."

The farm as a father-son partnership is now in the process of having pipeline milkers and a bulk tank installed. This increased investment means that they will enlarge their milking herd from 35 to 50 cows.

Larry says it also means that they are going to need to float a loan which they plan to get from the Production Credit Association. Larry and his father now have about $50,000 invest- in their farm, livestock, and equipment.

Bermuda is favorite forage . . .

Coastal Bermuda is their main pasture and hay crop for the dairy herd. Larry planted their first acre back in 1956 and now they have approximately 40 acres growing in this "miracle grass."

All the roughage is produced on the farm and even after a hard long winter they came through with plenty of hay left over. Starr Millet is used for summer temporary grazing and a mixture of oats, rye, rye grass, and Crimson clover is used for winter grazing. They seem to have the knack of growing winter forage if anyone is able to do so.

They buy all their grain feed, figuring that it is more economical to produce the roughage on their land, as they do not have enough acres to produce both.

Top 4-H record . . .

Larry's big start in 4-H club work was in 1958 when he was selected as the state winner in Georgia for dairy achievement. This honor also awarded him a trip to the National 4-H Congress.

Joining a 4-H club in 1950, he has been very active in many club and community activities as president of the organization and other leadership projects. He has always believed that in addition to his main interest of dairying that it was very important to get training in a variety of other fields. Thus, his 4-H history shows that he was an outstanding boy in showmanship, community improvement work, tractor maintenance, and other such club projects.

In 1955 his father bought him a purebred Guernsey heifer which became the first registered cow in the herd. This purchase was followed by other purebred animals to help establish production and type in getting a good herd started.

This early start with good dairy cattle, experience in 4-H club work, and with the opportunity to be a full partner with his father after high school laid the ground work for the establishment of this young man as a dairyman.

Benefits of DHIA . . .

Among these practices was the use of a sound selection and breeding program by using DHIA records. These records, with the help of their roughage feeding program, have been the important items in building the Tankersley herd.

Larry says, "I believe that dairy herd improvement work is a 'must' for me and that every dairyman should feel the same way about this program. Certainly it is important for me to know the exact cost of feeding every cow in the herd as well as the income of each cow. DHIA furnishes me a complete record on every cow. I feel that every dairyman who is trying to build a herd not only needs, but must have this information.

"In our herd, my father and I used the production records to set up a culling system. We keep heifers for replacements only from the best producers as proven by their records. These records also help us to feed grain to our cows according to the individual production of each cow. Then, in addition to all these benefits, records make the 365-day-a-year job of dairying more interesting. My father and I like to get the records down and study them. They give us something interesting to talk about when we visit with other dairymen."

In addition to good herd production management, breeding has been done artificially on the Tankersley farm using good proven bulls. This kind of breeding and selection program, along with use of production records, has caused this herd to show constant improvement. It also has been one of the factors holding Larry's interest on the farm, allowing enough income to support a successful father-son partnership.

Larry plans to continue dairying as a career, working toward the improvement of the herd. He realizes that dairy farming is a business with a capital investment of at least $1,000 per cow and that it is just as important for him to keep good records on each cow as it is for any businessman to keep records on the departments of his business.

Looks ahead . . .

Larry's eight years of club work have given him many opportunities, privileges, and experiences plus the ambition of becoming a dairy farmer. His training has taught him to be a community leader and to look ahead.

He is active in many church and civic affairs. In addition, he has the attribute of being a hard worker and a pretty keen businessman. Last year he was married to Miss Thayer Chalker, a local girl who shares his interests and is lending a hand at present as a secretary in nearby Augusta. They are planning to build their home in the pines up the road from the family homestead.

E. A. Tankersley and Son realize that they have many problems to share. Larry fully understands that dairying is not a bed of roses, but he loves it and has a great faith in the future.

THE END

The author is county agricultural agent in Columbia County, Georgia.

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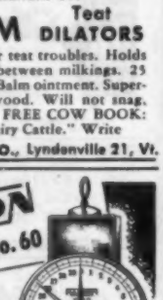

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Build strong, insulated barn doors

When constructed of a three-ply thickness or covered with rigid insulation board, doors will be easier to open in cold weather; barn will be warmer and drier.

by D. W. Bates

ILL-FITTING doors, which are wet or covered with frost or ice much of the time during the winter, are a curse to many dairymen. While these difficulties are quite generally accepted as being as sure as "death and taxes," no one really has to put up with them if he is willing to do something about it.

Most problems stem from the fact that doors do not have insulating properties equal to the rest of the building and, therefore, present a colder surface within the building on which moisture can condense. Another factor is that sliding doors, commonly used, cannot be made to fit tight and there is much air leakage around them.

Lumber tends to swell when wet and before many cold days have gone by, the doors can't be closed tight. Even with an outside "prop" and other devices, a tight fit is not possible. Hardware may even be broken during a frustrating attempt to open a door which is frozen shut.

The obvious answer to the chronic problem is to provide storm doors or to make doors which have the necessary insulating properties and use sufficient hardware to support them.

Use storm doors . . .

One way to eliminate difficulty with large, sliding doors commonly used at either end of a drive-through stable is to build inside storm doors. There are at least two ways to do this. One is to build a frame of light lumber which will just fit the door opening. Cover the frame with 25/32-inch rigid insulation board. Hinge this at the top of the door casing so that it can be swung up and attached to the ceiling when not in use.

A second method is to build double doors and hinge one to each side of the casing so they meet at the center of the large door opening. While satisfactory as far as giving added protection, the use of such doors is generally limited by the stable arrangement. If there is an alley at the end or if the cow stalls come to the end, these doors would be in the way.

Insulate doors . . .

Most hinged doors cause difficulties because they are made of only one or possibly two thicknesses of lumber. In cold areas, a recommended practice is to make these out of two thicknesses of lumber with insulation board between, protected by a vapor barrier.

It is sometimes said that doors of this construction are so heavy they cannot be held in place. However, three heavy hook and strap hinges per door will do the job.

Doors made and hung in this way will fit tight and do not require the use of an additional storm door. They are desirable for milk houses, milking parlors, and feed rooms, as well as dairy stables.

Covering overhead doors with a thickness of rigid insulation board, where their design permits, will greatly reduce moisture formation on them.

Ventilation necessary . . .

Regardless of their construction, the control of moisture on the doors of a dairy stable, or any other animal shelter which is kept warm, is directly related to the efficiency of the ventilation system.

Unless the humidity in the building is kept at a reasonable level, moisture is bound to collect on the inside surface of all parts whose exterior is exposed to cold temperatures, including walls, windows, ceilings, and doors.

Why build large doors?

A question that might be considered is, "Why build large doors at the ends of the litter alley in a dairy stable at all?" Most new barns have gutter cleaners installed at the time of construction. The need for the drive-through stable is, for the most part, past. If this is true, so is the need for the doors that go with it. Yet common practice still dictates the use of large doors at each end of the stable because "they might be needed sometime."

It certainly doesn't require a door 8 or 10 feet wide to let the herd out of the barn. Nor does it require such a door through which to bring feed in a one-story barn. A width of four feet is ample.

An argument raised in favor of the large doors, regardless of the gutter cleaner, is that the stable is a nice place to leave the tractor and spreader during cold weather.

I doubt, however, that a Grade A milk inspector would look upon this practice with favor. Certainly the moisture that collects on, and in, a tractor as the result of being driven from sub-zero outside temperatures into a warm, damp barn will do it no good.

When a gutter cleaner is installed in an existing barn, why not make it a standard practice to close up the large doors, which have served their purpose and replace them with smaller ones that are "easier to live with"?

This is an age of modernization in building construction. Let's include doors.

The author is an extension agricultural engineer at the University of Minnesota.

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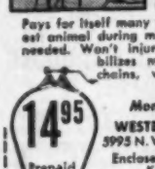

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Your income tax questions

Ordinary farm income is fully taxable, while only 50 per cent of capital gains are taxed. Here is how to report livestock, machinery, and land sales.

by G. A. Peterson

INCOME tax is a farm business expense which deserves as much attention as any other farm expense item. Farm business transactions before the end of the year may affect the amount of tax expense on income for 1961.

If you had an exceptionally good year, you may wish to postpone income into next year. On the other hand, if you had a poor year, you may wish to postpone expense items into next year.

When you have done all you can in practicing wise tax management, you still may have specific questions regarding the reporting of your income. Many of these can be answered by a careful study of the "Farmer's Tax Guide," a publication prepared by the Bureau of Internal Revenue, which is available at your county extension office.

The general problem areas discussed in this article apply to the federal income tax report. If your state has an income tax, you must check your state tax instructions.

Income or capital gains . . .

The question of whether income is reported as ordinary farm income or as a capital gain is most frequently asked by farmers. If it is reported as ordinary farm income, it is fully taxable, but if it is reported as capital gains, it may be taxable only to the extent of 50 per cent.

Questions on capital gains vs. ordinary income usually are associated with the following:

1. Income from the sale of mature animals from a breeding herd.
2. Income from the sale of animals from a breeding herd sold before they reached maturity.
3. Income from the sale of livestock which were bred but sold to other farmers.
4. Income from the sale of capital investments such as machinery and equipment, farm real estate, and timber.

Reporting livestock sales . . .

Reference to the "Farmer's Tax Guide" will help in many cases. Income from the sale of livestock which were purchased or raised with "intent" to add them to the breeding herd is reported as capital gain, if the livestock were owned for one year or more. The animals must not have reached maturity. The "intent" must be for adding them to the breeding herd of the taxpayer and not the individual to whom they were sold.

Income from the sale of livestock purchased for resale or raised for sale in the market is considered ordinary income. The latter includes market hogs, feeder cattle, and young stock purchased or raised with "intent" to resell them in the future and not use them in the breeding herd.

Reporting machinery . . .

When machinery and equipment are sold or traded, you pay tax on the capital gain over and above the undepreciated value of the equipment. The undepreciated value is the cost basis of the sale in determining the capital gain.

If machinery and equipment are exchanged for like equipment, capital gain on the old equipment, if any, has been reinvested in the new equipment. The undepreciated value of the old machine plus the difference paid in obtaining the new equipment becomes the cost basis of the new equipment. Thus, the capital gain on the old machine will be taxed, if and when the new machine is sold.

The important point in tax management for the sale and exchange of machinery and equipment is to maintain accurate records of inventory values and depreciation schedules for all your machinery and equipment.

When selling land . . .

A capital item such as farm land (not including buildings) is not depreciated each year, and a cost basis must be determined when reporting capital gains from the sale of the asset.

The cost basis is the purchase price plus the remaining value of capital improvements such as tiling, and so forth, which have added to the value of the asset. Income over and above the cost basis is reported as capital gain.

Reporting income from the cutting and sale of timber is somewhat more complex. If timber is cut and sold in the form of logs, lumber, pulpwood, or firewood, the income is reported as ordinary income. The expenses for cutting and selling the timber may be deducted as a farm expense and an allowance for depletion to recover a proportionate share of the capital investment also may be claimed.

Under some circumstances, cutting timber may be a capital gain or loss, but several points must be given special consideration in reporting the sale. Some of the special considerations include:

1. The timber must be owned more than six months.
2. It must have been owned as an investment and not as the ordinary course of business.
3. A special rule may be elected if the time of cutting is different from the time of sale of the timber, and once the special rule is elected, it remains in force for all subsequent years.

Other questions are associated

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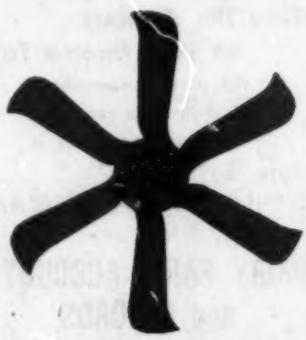
The author is associate professor of agricultural economics at the University of Wisconsin.



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with depreciation expense and usually are in regard to:

- Determining depreciation rates on new investments in buildings and machinery.
- Determining whether a specific expense item must be depreciated over the life of the investment or whether it can be entered as a farm expense in the year it was incurred.

No set of instructions could be detailed enough to set forth the expected life of every investment on a farm. A farmer must use his own judgment, and the tax guide provides some help on the matter of determining depreciation expense.

One farmer was concerned about the expected life of a new concrete silo which cost $2,000. If a $2,000 investment is depreciated over a 30-year period, the annual depreciation expense would be $67. If the silo is depreciated over a period of 40 years, the annual depreciation expense would be $17 less than for the 30-year period.

A $17 expense may be a rather small item in a single tax year. However, if the farm was sold, the undepreciated value of the silo would be a substantial item in determining the capital gains on the sale of the farm.

Farmers have difficulty deciding whether an expense item can be entered as a farm expense for the year incurred or whether it must be depreciated over several years.

If a farm expenditure increases the life of an investment in buildings and equipment, the expense must be added to the value of the buildings and equipment and depreciated over the remaining life. If the expense is for upkeep and maintenance and does not increase the life or change the value, it may be considered an annual expense item.

The two general areas discussed cover a majority of questions received from farmers, but other questions do occur. A study of the "Farmer's Tax Guide" may help answer more specific questions.

$1,000 worth of fertilizer

(Continued from page 1203)

the crops fed to animals.

Careless handling, however, can reduce these amounts considerably. Although it would be hard to find a farmer who would buy even $50 worth of fertilizer and then make no use of it or let it stand in the open, exposed to weather for several months, it's not too difficult to find farms where manure worth hundreds of dollars is treated in this manner. Where manure is piled in the open for a long period of time, half the fertility in it may leach away and be lost.

Where weather, field conditions, and livestock management permit, spreading manure daily is a good idea. In a 40-year Ohio Experiment Station test, manure hauled and spread daily produced an average of 13 per cent more dry matter in a rotation of corn, wheat, and clover than when manure was stacked and not spread until April.

During the winter, though, it usually is wise to stay off the hills if the ground is frozen. Either spread manure on the level fields, or stack it until spring.

Since each ton of manure contains about 10 pounds of nitrogen, the best place to put it is just ahead of a nitrogen-requiring crop. If possible, start by spreading manure on unplowed land. Once the ground is covered with snow, change to the plowed fields that are fairly level. This way there is less chance of the manure washing away. Also, it is easier to drive over the plowed field after there is some snow on it.

Where it is necessary to store manure because of deep snow or hilly land, do it right. Pile it in compact piles at least 4 feet deep. Keep the top of the pile flat and the sides steep.

Ideally, the best place to store manure is in a pen or loose-housing barn. Here the manure gets packed tight and stays moist. Fermentation slows down so there is little loss of nitrogen.

It's also a good idea to sprinkle some superphosphate in the gutter. Otherwise, as soon as manure starts to ferment, it gives off nitrogen in the form of ammonia gas. From 1 to 2 pounds of superphosphate per cow daily will hold most of the nitrogen. Wisconsin research shows that plants use more phosphorous added to the soil this way than when the same phosphorous is applied on an unmanured field.

When you spread manure, this is a good time to lime fields. In addition to providing calcium and magnesium, limestone stimulates microbe activity, makes more minerals available to plants, and improves the soil's physical condition.

Determine the amount of limestone you need to add by testing the soil. If the pH shows you need about a ton per acre and you haul 10 loads of manure to an acre, just add 200 pounds of ground limestone to each load.

As soon as it is possible, plow down or disk under manure that has been stored over winter. Fermented manure loses nitrogen quickly when it dries out. If you don't plow it down before it dries, its fertility value goes down about 30 per cent.

California studies on experimental dairy setups indicate that a liquid manure handling system will pay for itself in one to three years. Almost 100 per cent of the nutrients can be saved when using a liquid system.

Whichever manure handling system you use, don't sell manure short. Regard it as a by-product and not a waste. It may take a few minutes longer to handle it correctly . . . but one thing for sure . . . it's worth it! **THE END**

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MAKE BIG MONEY taking orders Campbell's Gro-Green liquid and 100% soluble crystal fertilizer concentrates. Saves time, money, labor. Feeds foliage, soil. Field proven over 10 years. Increases protein, mineral content grains, forage. Free sample. Selling outfit. Credit given. Ideal for corn and feed men. CAMPBELL COMPANY (Est. 1938), Rochelle 60, Illinois. 23-10

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MEN WANTED experienced in direct farm sales. Sell the sensational new cattle cleaner Dairy-Vac with booster power. Write DAIRY-VAC, Osseo, Wisconsin. 24-4

MISCELLANEOUS

HOW TO TRAP SPARROWS and starlings with famed, "Black Lily" elevator traps. New information everyone should have. It's free. Simply address, SPARROWTRAPS, 605 Detroit Lakes, Minnesota. 31-*

DOGS

SHEPHERDS, COLLIES. Outstanding Heelers. Watch Dogs. ZIMMERMAN FARMS, Flanagan, Illinois 3-*

GENUINE English Shepherd and Collie Pups. Healthy and strong. Guaranteed heelers. Year's trial. Choice of sex. Spayed females a specialty. Priced right. CLOVERDALE KENNEL FARM, Ackley, Iowa. 18-*

WANTED: Well trained cow dog, must be young and well broke, will pay good price. BOX 765, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

FOR SALE: Border Collie pups, guaranteed to make good cow dogs. ALLAN LURVEY, Dousman, Wisconsin. 24-2

SWINE

FOR SALE: Wisconsin feeder pigs delivered direct from farmer to farmer in one day. Sold by weight, $12.50 for 40 lbs., 10 cents a lb. for each additional lb. Veterinarian inspected. All top quality. C. ACKER, Middleton, Wisconsin, Terrace 6-3451. 23-*

DAIRY CATTLE

NOTICE TO BUYERS — WHEN BUYING DAIRY CALVES OR DAIRY CATTLE, inspect and select cattle personally. If impossible, have them checked by someone in whom you have confidence. Complete understanding in writing between buyer and seller is very important. Should you buy on approval, it is advisable to have animals inspected by veterinarian on arrival before acceptance. Report serious health problems to your state veterinarian. — Hoard's Dairyman.

22 REGISTERED HOLSTEIN cows just fresh, 5 springing heifers, 15 heifers breeding age, 9 heifer calves. Best offer. PAUL VAN CLEVE, Littlestown, Pennsylvania. Phone 359-4582.

KEATING BROS. FARM offers large selection vaccinated, tested, quality dairy cattle. Call Jordan 3-5905, FORT ATKINSON, WISCONSIN. 24-*

LARGE FRESH HOLSTEINS, world's best, 4,000 available, no order or sale too small or too large, self paying terms. CANADIAN & WISCONSIN DAIRY COW COMPANY, INC., 20 North 4th Street, Quakertown, Pa.

REGISTERED HOLSTEINS: A few service age bulls, some younger males, foundation females and heifers. Nearly all sired by excellent sires and from classified dams with HIR records. SanMarGale FARMS, Box 265, Lebanon, Ohio. Phone 5-2606. 22-*

CANADIAN Registered Holsteins. Young vaccinated cows and heifers. Buy direct from the farms. Elgin County Holstein Breeders Club. Telephone Talbotville, Ontario 6-R-12. DON SHORE, R.R. #6, St. Thomas, Ontario, Canada. 7-*

FOR SALE: Holstein springing heifers and cows. Good selection of open and bred heifers. R. B. BRICHER, St. Charles, Illinois. Phone JU-4-2347 days, JU-4-2895 nights. 7-24

HIGH QUALITY Holstein and Guernsey springers and heifers all sizes. J. W. & BILL GEURKINK, telephone 322 or 21F31, Baldwin, Wisconsin. 15-*

CHOICE SELECTION of Holstein dairy cows and heifers, fresh and close springers. T.B. and Bang's tested. Calfhood vaccinated. Registered bulls service age. HARTMAN & SON, Hampshire, Illinois. Phone 2631. 2-*

ATTENTION DAIRYMEN and Cattle Dealers: Indiana's largest selection of grade and purebred Holstein cattle, bred for production and show type, will sell one or 500. We will ship subject to approval. Cattle eligible for any state. Vaccinated, TB and Bang's accredited. Terms to reliable parties. BOTTEMA FARMS, Rural Route #2, Box 206, Indianapolis, Indiana. Phone TE 9-6575. 13-*

CANADIAN HOLSTEINS direct from the farms. Registered, T.B. and Bang's certified. MIDDLESEX HOLSTEIN BREEDERS ASSOCIATION. Phone Lambeth OL 2-2616. Hardy Shore, Glanworth, Ontario. 15-*

FOR SALE: Buy your vaccinated dairy cows and heifers direct from the farmers where quality prevails. GEORGE E. SWANSON, Rice Lake, Wis. Phone CEdar 4-4717. 6-19

FOR SALE: High quality Holstein heifers, calfhood vaccinated, TB tested. NATIONAL DAIRY RESEARCH FARM, P. O. Box 143, phone Hickory 8-1940, Danville, Illinois. 20-6

WISCONSIN HOLSTEINS for the Southern States. Guernsey, Jersey, Brown Swiss. Cow sized heifers my speciality. Financed. Call P. H. ELAM, Marshall, North Carolina, phone 3451, or Mars Hill, North Carolina, 2381 nights. 14-*

KENYON BROTHERS FARM serving the dairy farmer for forty years. Large selection of choice Holstein cows and first calf heifers, fresh and close springers, service bulls. T.B. and Bang's tested. In carload or truckload lots. KENYON BROTHERS CO., Elgin, Illinois. Phone SHerwood 1-1818. 19-*

DAIRY CATTLE SALES, every Thursday, April through October. Top springer cows and heifers. 400 to 600 head every sale. MATTES LIVESTOCK MARKET, Thorp, Wis. 10-*

LARGE SELECTION artificially sired, bred and open heifers. Home raised. Write or call KURT GRIEBENOW, Route 2, Watertown, Wisconsin, 9665R1. 20-spl.

SELECTED SPRINGING HOLSTEIN cows and heifers, all ages. Registered and grade. WILLIAM CLOW, Plainfield, Illinois. General 6-6629. 23-3

MORE SPECIAL OPPORTUNITIES ON NEXT PAGE

"Patsy's" daughter sets record

Breezewood Champion Barbara, daughter of the registered Holstein cow with the all-time, all-breed, national record, is living up to family tradition. The oldest daughter of the famous Princess Breezewood R. A. Patsy recently completed an official 365-day lactation of 30,087 pounds of milk, 1,300 pounds butterfat. It sets a new high for senior 3-year-olds milked twice daily in HIR.

The previous class record was 29,583 pounds of milk, 1,110 pounds butterfat, established in 1955 by Hamaret Piebe Arab, then owned by Howard Sisson, Sherburne, N. Y.

"Barbara," like her mother is owned by Henry and Herman Gelbke, Vienna, Ohio. En route to her new national record, Barbara ranked among the most-tested cows in America. She was tested on 21 different days, including 9 check tests and 1 retest. Five different testing supervisors, representing both Ohio State and Pennsylvania State Universities were employed.

Hoard's Dairyman readers will remember that "Patsy" achieved national fame on her record of 1,866 pounds fat, 36,821 pounds milk on twice daily milking.

Jersey brings record price

Golden Etta Star, a 6-year-old registered Jersey bull, sold for $37,000 in the Golden Etta Star Sale, held November 11 at Springfield, Ohio. This is the highest price ever paid for an American bred Jersey bull at auction.

Consigned by Chester Folck and Sons, Springfield, Ohio, and Christmas Acres, Orlando, Florida, this Excellent, Senior Superior Sire was purchased by a syndicate of Jersey breeders. They included: Pioneer Farm, Old Lyme, Conn.; Four Winds Farm, Delavan, Wis.; B. W. Judge, Orlando, Fla.; Reg Broad, Melbourne, Australia; and Chester Folck and Sons.

The entire sale averaged $2,105 on 40 head. This is the highest Jersey sale average since the 1958 All American Jersey Sale.

Second high animal was Double Star, a 9-month-old son of the top bull consigned by Meadowridge Jerseys, Ridgeway, Mich. He sold for $3,200 to Central Ontario Breeders' Association and Waterloo Breeding Association, Woodstock, Ont., Can.

Top female of the sale was Golden Etta Star Etta, another daughter of the $37,000 bull. She sold for $3,000 to George Borg, Four Winds Farm, Delavan, Wis.

Twenty-six daughters and two sons of Golden Etta Star sold for $33,600, for an average of $1,200.

Special Opportunities

DAIRY CATTLE

HIGH QUALITY Wisconsin dairy cattle. Holstein and Guernsey dairy cows and heifers, fresh and close springers. Open and bred heifers all sizes. HRDLICKA BROTHERS, Jim Falls, Wisconsin. Phone Fulton 2-3135 or 2-3131. 23-6

DAIRY CATTLE, FINANCING. Top quality dairy cows and heifers available on financing plan. No down payment, up to 36 months to pay. Low interest rates to reliable parties only. Always large selection fresh and heavy springers on hand. Every cow guaranteed tested. For information write FRANK MACKEY, Lenexa, Kansas. TU-8-5389. Farm located 7 miles west Overland Park, Kan. on 87th. 23-2

WISCONSIN DAIRY COWS — I am handling good-producing dairy cows for improvement to your dairy herd. If you are interested in a higher milk producing herd, I can supply you with all the good dairy cows you need. Arrangements can be made to make delivery of these cows anywhere in the United States or abroad. Office headquarters are at Columbus, New Jersey. Always a large selection on hand. Write or call REUBEN GREENBERG, Columbus, New Jersey. "A good deal for every dairyman." Mailing address Reuben Greenberg, Columbus, New Jersey—phone Bordentown, N. J., AXminster 8-1031. 20-spl.

FOR SALE: Three year old registered Dutch Belted bull, good breeder. HENRY SWAGGART, New Providence, Iowa.

BEEF CATTLE

CHAROLAIS PUREBRED. Females, bulls, Foundation herd quality. Imported Yates bloodlines. BILL LAMME, Leclede 17, Missouri. 22-*

Sales Announcements

December 28, 1961 Holsteins and Brown Swiss. Fullpail Project calf sale, New Fullpail Arena, Hartford, Wisconsin. 60 head. 4-H and F.F.A. Plan to attend. The Sale of and for Young Stars. Fullpail Sales, Ernie Kueffner & Family, Managers. Phone 673-5804 Hartford, Wis.

January 8, 1962 Wisconsin Breeders' Sale, Watertown, Wis. (at the Darcey Sales Pavilion located 6 miles North of Watertown on Highway 26). 12:30 p.m. 75 head. Francis Darcey & Sons, Watertown, Wisconsin.

DISPLAY

LIVESTOCK DISPLAY ADVERTISING

COPY MUST REACH US ONE MONTH BEFORE ISSUE DATE

For advertising of livestock only: including consignment, dispersal or reduction sales, breeders herds and individual animals. Also dealers, county, state and national breed associations, artificial breeding associations, semen sale ads, fairs, expositions etc.

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Special rates for continuous and large space advertisers.

A NEW TRI STATE SERVICE

For Dairyman — For Dairyman

Dairy Cattle Replacement Marketing. Select your Replacement Cattle from over 30,000 dairymen! We handle only quality cattle. All breeds.

A.I.— GRADES— REGISTERED

Fieldmen Service — Commission charge of $5 on all orders over 10 animals. $10 on orders less than ten animals.

FOR INFORMATION, CONTACT — Wayne L. Wendorf

TRI-STATE BREEDERS COOPERATIVE

Westby, Wisconsin — Phone 93

BROWN SWISS

PROFIT MORE *with* BROWN SWISS

Brown Swiss have built their own popularity. Their consistent, profitable production over many years makes them the choice of better dairy farmers everywhere.

The market for Brown Swiss Cattle is strong, and surplus cattle sold to go into other herds bring uniformly good prices. Because of their size, their strength, their ruggedness and their ability to efficiently utilize pasture and coarse roughage, you will find Brown Swiss well adapted to your dairy farm conditions. They are truly the "Farmers Cow." Buy a foundation and you'll soon have a herd.

For more information about the breed write: BROWN SWISS ASSOCIATION, Beloit, Wis.

JERSEYS

I have choice high grade bred Jersey and Guernsey heifers, also fresh and springer cows. All T.B. and Bang's tested. Come and make your selection, or will fill your order or help you buy. Phone University 5-6115. **CLAUDE THORNTON, Route 2, Box 286, Springfield, Mo.**

JERSEY AND GUERNSEY HEIFERS

Heavy springers, bred or open. Also Jersey and Guernsey cows, fresh or springers. 250 to 300 head on hand at all times to choose from. Mostly calfhood vaccinated. All animals shipped by Federal regulations of your state. I deliver. **ELLIS W. TAYLOR,** Route 1, Strafford, Missouri. Phone RE 6-2755.

Brigham Jerseys

Here's A Clue to '62

The Production Kind of Jerseys Are Increasing in Popularity By Leaps And Bounds

We Have A Few Choice Herd Sire Prospects Ready To Do Great Things In Building Production In Your Herd.

Remember we are completing our 21st Year over 500 lbs. Fat on 100 cows, twice daily milking.

HEIFERS ALSO AVAILABLE WRITE FOR LISTS

BRIGHAM FARM ST. ALBANS, VERMONT

TYPY SON OF A WISCONSIN R.O.M. CLASS LEADER. His maternal sisters', dams' and maternal granddams' best records av. 13,391 M, 759 F, mature basis. His EX sire Brampton Bell's Record has 129 cl. daus. that av. 87.27%.

PIXY FARM HUDSON, WIS.

AYRSHIRES

NOW YOU CAN BUY

POLLED AYRSHIRE BULL CALVES

That are from high producing families
That are of Carefree Farms & Penshurst Breeding
That give you excellent type calves
That are priced at prices sure to please

WRITE FOR PEDIGREES AND PRICES
CAREFREE FARMS NEW HAVEN, INDIANA

REGISTERED AYRSHIRE BULL, 18 months old, sired by double approved bull. Dam's record 19,436 M, 885 F. Reasonable.
GREENFIELD FARMS, Route 2, Box 63, Mukwonago, Wisconsin

THE NEW AYRSHIRE LOOK

GREATER PRODUCTION PROOF

ACTUAL 2X 305 DAYS

SHAGBARK RHODA—1024 F. 20,605 M. at 8 yrs. Pictured here.
CRYSTAL SPRING BEVERLY H.B.— 24,630 M. 911 F. at 7 yrs.
GREEN VALLEY RAFF INCENSE— 21,255 M. 916 F. 4.3% at 7 yrs.
VALHALA HANNAH 2nd—20,616 M. 916 F. 4.4% at 4 yrs. 4 mos.

GREATER PROFITS — Noted Longevity with Lower Replacement costs — Economical converters of feed to quality milk — Regularity of calving — Lower Veterinary costs — Udders strongly attached.

GREATER OPPORTUNITIES — For Net Profits — For Milk that suits the Market — For Sales

Write: **AYRSHIRE BREEDERS' ASS'N.,** 10 Center St., Brandon, Vt.

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— Hoard's Dairyman.

GUERNSEYS

How to Succeed in Modern Dairying

— Start a REGISTERED GUERNSEY HERD

Guernseys are your best choice for highest net income. Send for FREE booklet, includes details on profitable business of producing and selling Golden Guernsey Milk Products.

AMERICAN GUERNSEY CATTLE CLUB
27 Main St., Peterborough, N. H.

HOLSTEINS GUERNSEYS

Large selection of high grade cows and heifers of all ages. Calfhood vaccinated — lab. tested. We feed well balanced roughage for top production and size. Buy direct and save. Experienced insured transportation.

LAKESIDE DAIRY FARMS
Quality Cattle Since 1929
Silver Lake, Indiana — **Telephone 3801-3804**

PUREBRED GUERNSEYS

Choice well bred heifers and young cows due December through February. Also heifer calves and yearlings. By proven sires and from great cow families. Production testing for over fifty years.

TARBELL GUERNSEY FARMS
SMITHVILLE FLATS, N. Y.

GUERNSEY *SALES SERVICE*

Six fieldmen of the largest Guernsey Association in the nation are fully acquainted with cattle for sale in Pa., Del. and Eastern States. We have private listings at all times, also regular monthly sales. If you need one, or a car load, write for prices — get quick service. If you want to sell, contact us — low selling charge — prompt payment.

Often requests for cattle come from all over the United States. It may be from your next door neighbor! Send us your listing so we can tell the prospect nearest you.

Pa. Guernsey Breeders' Ass'n.
P. O. BOX 302 — **CAMP HILL, PA.**

PROMISING GUERNSEY BULL CALVES

Several youngsters sired by Dairyman F'a Jado, Elmwood Dairyman Triumph or one of our junior sires. All out of good producing dams with good type. Here is your chance to get a young sire possessing bloodlines bred proven for profitable production. Priced to sell quickly.

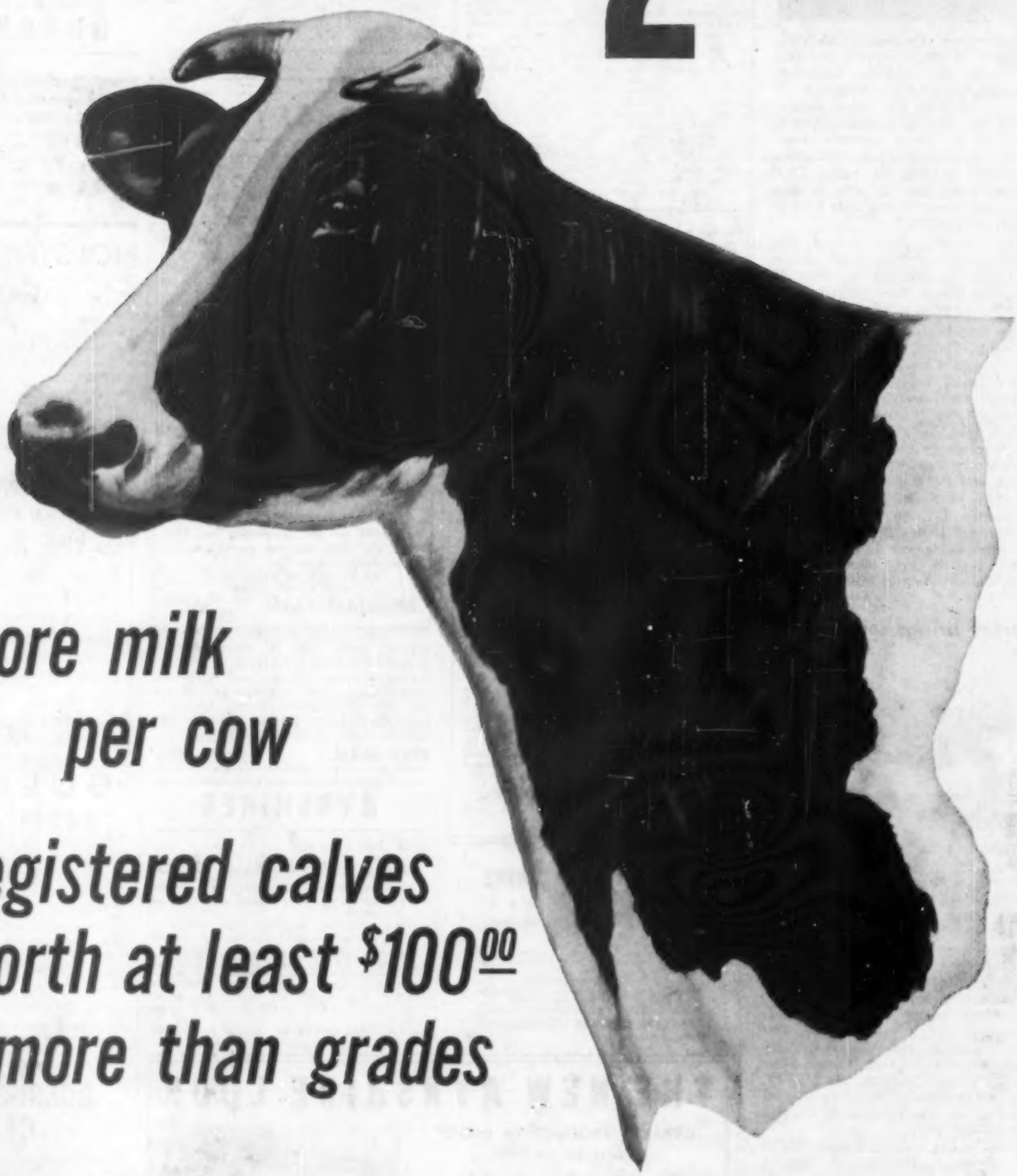
Write for descriptions and prices, or come and pick one out.

HOARD'S DAIRYMAN FARM
FORT ATKINSON, WIS.

GRANDVU GUERNSEYS — Choice young bulls and heifers, all ages. Blue Ribbon Type, size, production breeding. From 2 great Proved high index sires. Flying Horse Masters Royal, Greenfield Music Maker. Foundation Club Calves. The right kind at the right price. Write or come to Grandvu Farms, Wrightstown, Wis.

Are you moving? So that you won't miss any issues, notify us three weeks prior to moving date.

Registered Holsteins make money 2 ways



1. *more milk per cow*

2. *registered calves worth at least $100.00 more than grades*

Registered HOLSTEINS *Breed of the Times*

fit the farm...fit the market

THE HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA
BRATTLEBORO, VERMONT

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— Hoard's Dairyman.

GUERNSEYS

Waukesha County can furnish you with most any kind of Guernseys you desire—grade or pure bred. Lee Burlingham, fieldman, at your service. **Waukesha County Guernsey Breeders' Assn., Waukesha, Wisconsin.**

HOLSTEINS

REGISTERED HOLSTEIN COWS and heifers. Calfhood vaccinated. Largest herd of registered Holsteins in America. Our prices are very reasonable and we deliver anywhere. Everything guaranteed exactly as represented. See, write or call us before buying dairy cattle of any kind. Visitors always welcome.

GREEN MEADOW FARMS Elsie, Michigan

INTER-COUNTY DAIRY CATTLE ASSOCIATION

Box 823 118 Baxter St., Waukesha, Wis. Phone: LI 7-3644

Registered or high grade Holsteins for foundation or replacement. Come and make your selections or we will fill your order as directed. Years of experience handling domestic and foreign shipments. Financing. Write for information.

ARTHUR F. BENNETT REYNOLD BENNETT JAMES L. GORDON

This month we offer Stoffell Oostie Elmer, born Dec. 1, 1960. He is sired by Stoffell Oostie Carnation Inka, a Carnation Stylemaster son. His dam Stoffell Carnation Eliga as a 4-yr-old produced 17,330 M.

For price and pedigree write:

STOFFELL'S MILK FARM

Route 12 Knoxville, Tennessee

CHOICE HOLSTEIN cows and heifers, all ages. Vaccinated, TB free. Fieldman available, or will fill orders as directed. DEAN HARNDEN, Whitewater Dairy Association, Whitewater, Wis. Phone Palmyra 495-2422.

CARNATION IDEAL NEWCOMER
Born: September 30, 1960

OFFERING A SERVICE AGE SON OF FRASEA IDEAL PILOT

It isn't often that we can offer a bull of service age. This one is available only because he was held for a foreign buyer who was not able to complete the transaction.

He is a son of VG, GM Frasea Ideal Pilot. His dam is a VG (88-point)) dau. of Carnation Madcap Butter Boy from an EX, GM dam. His dam and her full sister were First Produce of Dam at the 1961 Western Washington Fair and second at the Pacific International. They were also members of the winning Butter Boy Get at both the above shows.

His dam made 15,017 M, 562 F, 3.7% at 2 years 2 months on 2x. She is one of 6 VG maternal sisters.

There are 6 EX, 7 VG and one unclassified ancestors in this bull's 4-generation pedigree. The 13 classified ancestors average 90.2 points. Six of the 7 dams in the pedigree have A.R. records averaging 21,494 M, 828.8 F, 3.85%. The seventh dam has a lifetime total on DHIA of 137,487 M, 4,728.7 F.

Here is a richly bred service age bull from a great, good uddered cow family. He will make someone a great sire.

Write for complete information and price.

Carnation Milk Farms

Address: CARNATION MILK FARMS Dept. 2217 Carnation, Washington

Buy Holsteins Straight From "The Heart"

Best selection from one of the world's largest dairy counties. Over 15,000 cattle are on DHIA test and more than 40,000 bred artificially from some of the top proven bulls. Fieldman sales and service. For information write: Frank E. Cairns, Fieldman, City County Bldg., Madison 9, Wis. Tel. ALpine 6-0513 or CEdar 3-5538. **DANE COUNTY HOLSTEIN BREEDERS CO-OP ASSOC. Madison, Wis.**

WAUKESHA DAIRY CATTLE SALES & SERVICE

Quality Holsteins

Will be glad to help you. We also buy on order. Will fill orders at your direction.

ED WEYKER

P.O. Box 141 Waukesha, Wis. Call Dousman, Wis. 965-2618, anytime at night.

WISCONSIN BREEDERS' SALE

MONDAY, JAN. 8, 1962

WATERTOWN, WIS.

(at the Darcey Sales Pavilion located 6 miles North of Watertown on Highway 26—Sale starts at 12:30 p.m.)

75 HEAD OF REGISTERED AND TOP GRADE HOLSTEINS

35 close and fresh cows, many with records of about 500 F.

35 springing heifers from dams with records up to 600 F.

5 serviceable age bulls from good cow families with top records.

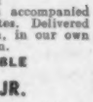
Many of these animals are sired by proven sires—among them—Pabst Sir Comet Oliver, Brigeen Golden Foremost, Pabst Comet King, Gray View Skyliner and others.

FRANCIS DARCEY & SONS
WATERTOWN, WIS.

WISCONSIN DAIRY CATTLE

Holsteins Guernseys-Brown Swiss

COWS, HEIFERS
ALL AGES
Registered and nonregistered



Come here and make you own selections. Or we will fill your order on direction from you and deliver on approval. Shipments accompanied by the proper health certificates. Delivered in truck load lots to your farm, in our own trucks by experienced cattlemen.

FINANCING AVAILABLE

JAY SHEAFOR, JR.

ROUTE 1, RICHLAND CENTER, WIS.
Phone MI 7-3209 or MI 7-2515

HOLSTEINS

REGISTERED AND GRADES

Select foundation Holstein Cows and Heifers with Production, type, and size from our Foundation Wisconsin Herds. Artificial Breeding, Calfhood Vaccinated. Bangs and T.B. Tested.

FINANCING

Arrangements have been made with the Dairy Credit Co., DeKalb, Illinois to finance acceptable purchases. Only a down payment is needed and the balance on monthly installments. "The cows will pay for themselves as they produce." For more information about financing call or write Dairy Credit Co., 112 East Locust Street, DeKalb, Illinois Phone 6-4111.

Plan to come and select your Wisconsin Holstein or we will buy on order at your direction. Fieldman service write or phone.

PIPER BROS.

Box 362 Phone 2170 Watertown, Wisconsin

COLUMBIA COUNTY HOLSTEIN BREEDERS' ASS'N

Serving five counties. Offering select quality heifers and young cows, grade and registered, bred for type and production. Also choice, serviceable, registered bulls. Mostly Burke and Carnation breeding. Free fieldman service.

For information write: W. K. WRIGHT, Rt. 1, Columbus, Wis. Ph. Fall River 28F21

TRI-COUNTY HOLSTEIN ASSN., Watertown, Wis., Box 143. We fill orders efficiently for both Registered and Grade Holsteins. We furnish field service for selecting your animals. Fifty years in business—we aim to satisfy. Can furnish references. **Francis Darcey and Sons** — N. on Hy. 26 — 7 miles.

Holstein Cows and Heifers

If you're looking for cows or heifers come to Dodge County where good Holsteins are raised. Buy them first-handed and save expenses. We have 250 head of bred and springing grade and purebred Holstein cows and heifers on hand at all times. Can furnish transportation for any number large or small.

LOUIS NEHLS

Phone FULTON 6-4401 Juneau, Wisconsin

HOLSTEIN DAIRY CATTLE — Registered and Grade cows, heifers of all ages. TB and Bang's tested, calfhood vaccinated. Write or call for free price list. Fieldman service or will fill orders at your direction. **GEORGE PIPER, Watertown, Wis., Phone 2912-W.**

WISCONSIN STATE INSTITUTION

HOLSTEINS

"With development of bloodlines in our institution herds that have proved so outstanding in some of the best herds in the U.S.A., and in many foreign countries, we continue to offer the best in breeding stock.

"The Excellent and Gold Medal animals speak for themselves and with intensified linebreeding their offspring run true to form.

"A number of choice bulls from which to select a herd sire always available.

"For Information and sales lists, write to

FRED M. WHITEMARSH, Farm Supervisor
STATE DEPARTMENT OF PUBLIC WELFARE
State Office Building, Madison, Wisconsin."

WISCONSIN DAIRY CATTLE

Springing cows, springing heifers, bred heifers, open heifers. All breeds. We pride ourselves with satisfied customers. All cattle guaranteed at time of sale. We will deliver. Call or write:

WINSTON D. JUDD

Bancroft, Wis. Phone 130R or 136J2

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Serving nine counties, in the heart of Wisconsin's dairy land. Foundation registered and top quality grades available, bred for type and production. Over 300 registered breeders in area. All popular Holstein bloodlines. 5 large artificial breeding rings serving the area.

Come and make your own selections, or will buy on order at your direction. Fieldman service. Write, wire or phone G. J. STANCHFIELD, Phone WA 25264, 30 Champion Avenue, Fond du Lac, Wisconsin.

H. A. MEYER CATTLE CO.

PLYMOUTH, WISCONSIN
TW 2-6941

Quality dairy cattle available at all times. Fieldman service, order buying, and financing.

JEFFERSON COUNTY HOLSTEIN BREEDERS' ASSOCIATION

REGISTERED and GRADE HOLSTEINS

available from top DHIA accredited herds, many using artificial breeding. Heifers at all ages, good young cows. Financing Available.

Free fieldman services. Write-wire-phone for prices:

WILL BETSCHLER, Fieldman
Office in Black Hawk Hotel, Fort Atkinson, Wis.
Phone JOrdan 3-2329
Res. Phone LYnwood 3-2351 at Sullivan, Wis.

NORTHERN DAIRY CATTLE DIRECT FROM FARMER BREEDERS

T.B. & Bang's accredited county. Fieldmen sales & service, or orders filled. For information write, call, or wire **Barron Co. Coop. Dairy Cattle Sales Ass'n**, Barron, Wis. Glen L. Krahenbuhl, Mgr. Ph: Lennox 7-3202.

Purebred registered Holstein cows, heifers and service age bulls. These are top quality cattle bred and raised on our farm. Years of testing DHIA, calfhood vaccinated, TB and Bang's free. We will deliver. For more information call or write CARL MEDSKER, phone 2-3319 or 2-3067 Graysville, Ind.

MEDSKER FARMS SULLIVAN, IND.

FULLPAIL PROJECT CALF SALE

NEW FULLPAIL SALES ARENA, HARTFORD, WIS.

THURSDAY, DEC. 28th *(During Christmas Vacation)*

Registered Holsteins and Brown Swiss

60 Head of show calves born between July 1, 1960 and Sept. 30, 1961 primarily for 4-H and F.F.A. projects, personally selected from some of the leading herds in the nation, Voegeli, Norvic, Ostval, Christ Mayer & Sons, Piper Bros., and other top herds in Wisconsin.

4-H ***PLAN TO ATTEND*** **FFA**

The Sale Of and For Young Stars

FULLPAIL SALES, Managers
Ernie Kuelfner & Family

Phone 673-5804
HARTFORD, WIS.

CURTiSS

OFFERS

For concentrated goodness of the tremendous transmitting power of the NATION'S LEADING SIRES through whose use you can follow a breeding program enabling you to BUILD A BETTER HERD with

INCREASED PRODUCTION
IMPROVED TYPE
GREATER SALES VALUE

CURTiSS BREEDING SERVICE

CURTiSS BREEDING SERVICE, INC.

FIVE DAIRY • FOUR BEEF BREEDS • ONE DUAL PURPOSE

CURTISS FARM - CARY, ILLINOIS Otto Schnering, Founder Phone MEroury 9-2041

Veterinary Column

by E. A. Woelffer, D.V.M.

Skin gangrene

Gangrene of the skin refers to skin that dies and subsequently sloughs off. Often the inner layer is involved and some of the tissue underneath it.

It is called dry gangrene when the skin becomes dry and hard. When some of the inner layers are involved, a moist foul odor is often present. It is then termed moist gangrene. Both types of gangrene or skin necrosis are found frequently in animals.

The cause is mechanical or chemical in nature. When mechanical, it is usually in the form of pressure on soft tissue. The soft tissue usually overlays a hard bony surface. Bed sores are seen in animals that are unable to get to their feet and lie for long periods of time on hard, unbedded floors.

Principal locations are in the hip region and the outer side of the knee and hock joints. Cattle that are trucked or shipped in railroad cars are most often injured on the tail and pinbones.

Chemicals burn the skin (thermo gangrene). Examples of chemical irritants are strong acids and alkalies. They produce a skin gangrene or a coagulation of the cell proteins.

Walking in certain types of mud in cold weather may produce a gangrene to the feet of some animals. Walking or standing in some types of commercial fertilizers may also cause chemical gangrene.

Sometimes gangrene is produced when strong preparations are applied to the skin as in treatment for mange or other external parasites. Frostbites and other so-called thermo agents also cause gangrene. Common sites are the tail, feet, ends of ears, and nose.

Prevention and treatment . . .

Preventing injury provides the best solution to the problem of handling gangrene. To prevent sores in downer animals, provide a roomy box stall and keep it deeply bedded. A soft dirt floor or a protected place in the pasture in summer are often suitable.

Animals that are down should be turned over frequently to relieve the pressure on the sensitive areas. When transporting cows, place the animals so the tail and pinbones are not constantly rubbed and irritated. Avoid contact with chemicals and strong disinfectants. Avoid long exposure on cold days to prevent freezing of teats and ears.

Treatment during the early stages of skin gangrene usually begins with applications of astringents and antiseptic preparations. Sometimes it is necessary to remove the dead tissue surgically to expose the infected areas. These areas are then treated with appropriate solutions, powders, pastes, or ointments.

CURE FOR LUNGWORM?

I have several calves with symptoms of lungworm. They eat readily but always have a rattle in their throats. Even though they eat well, they seem to waste away; eventually they lie down, and after a few days, refuse to eat, and die.

Is there any cure?

Millersburg, Mich. E.H.B.

A drug known as cyanacethydrazide (Dictycide) is now available and is relatively effective against lungworm. Suggest you have your veterinarian attempt to make a positive diagnosis. If lungworm is found to be the cause, treatment and sanitation procedures should be started.

HEIFER HAS INFECTED QUARTER

My heifer freshened a few months ago. After her calf was weaned, she developed mastitis in one of her front teats. It is healed now but she gives only about a quarter pint of milk from this teat.

Will the milk flow from this teat return to normal before or after her second freshening?

Fort Recovery, O. D.Y.

Suggest you continue to milk the affected quarter. Then during the dry period have the affected quarter and possibly all four quarters treated. It is possible the quarter will milk as well or nearly as well in the next lactation as previously.

LEPTOSPIROSIS

Our herd of registered Guernseys never had a TB reactor and has been vaccinated for years, also certified Bang's-free for several years. Yet, two years ago, a few cows aborted. Our veterinarian tested and they were free of Bang's. So finally he tested for leptospirosis and found they were infected.

All our cows are home-bred but one heifer bought recently.

They were vaccinated in the spring of 1960 and again last spring. Is it necessary to vaccinate yearly?

Richmondville, N.Y. F.S.

Leptospirosis tends to persist longer in large herds than in smaller ones. Frequently the infection runs its course in a matter of one to three years. If the infection still persists, it appears advisable to continue vaccination. The infection is most readily transmitted through infected urine of domestic animals, primarily from hogs. Other sources of infection are wild animals including mice, rats, and so forth.

ENLARGING TEAT OPENING

I have a heifer that has two teats the openings of which are so restricted that it is difficult to get milk from them. I have been thinking of using a teat slitter to enlarge the openings but do not know how far to push the slitter up into the canal before opening the blade.

Fort Recovery, O. D.Y.

The hard-milking quarters can be made to milk more easily by inserting a teat bistoury or knife about one-third or one-fourth of an inch into the teat canal and severing the circular muscles in two or three places. This is a rather delicate operation so suggest you have your veterinarian do it. The operation should be done on a full udder, and a few strong squirts of milk taken from the teat at intervals of an hour during the day.

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When animal skin is injured, reach for soothing

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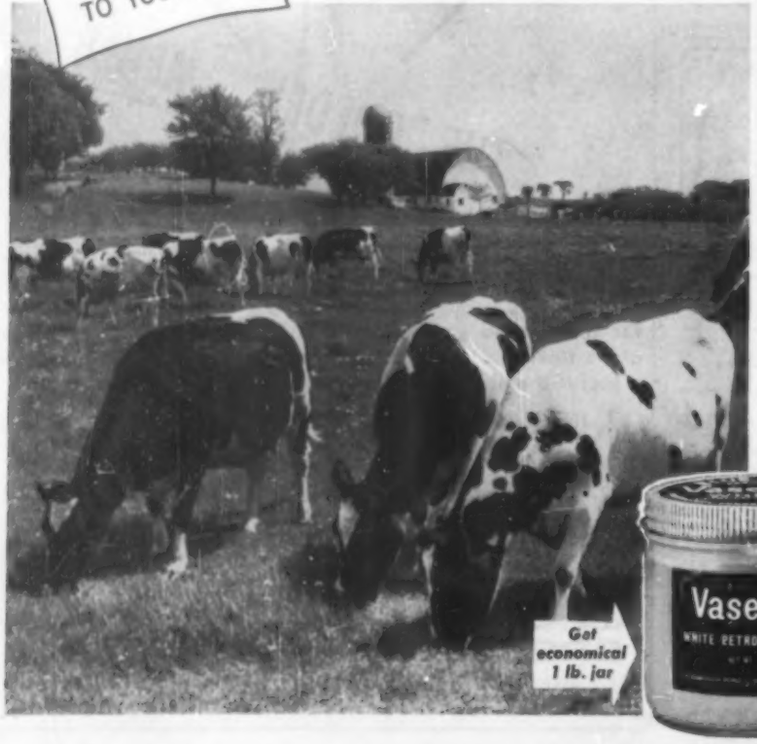

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A *day-in-day-out* program to control mastitis in your herd

PREVENT...

Regular use of 'Nolvasan,' in a sanitizing solution of one tablespoon per gallon of water, will help you keep mastitis from getting a start and from spreading. Wash udders before each milking. Dip teat ends after milking. 'Nolvasan' destroys mastitis-causing bacteria. Keeps them from invading udder tissues. Stops their progress from cow to cow.

'Nolvasan' speeds the healing of scratches and injuries. Protects from milking to milking. Non-irritating. Will not cause chapping. Keep 'Nolvasan' on hand. Buy it by the gallon from your local veterinarian. Ask him, also, about vaccination with *Biotized Fortibac.**

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TREAT...

'Soxipent' combines 2 selected antibiotics and 2 sulfas with cobalt for broad bacterial action, fast results. Its bacteria-killing ingredients disperse quickly throughout treated quarters while other components soothe and help to heal the inflamed udder tissues.

Mastitis plays no favorites. The better the cow, the greater your loss. Keep a supply of 'Soxipent' on hand. Available in tubes, disposable syringes or squeeze injectors from your veterinarian. Sanitize regularly, treat quickly. To comply with regulations, withhold milk from human consumption for 72 hours after treatment with 'Soxipent.'

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powerful mastitis treatment

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A COMPACT BULK MILK COOLER

that Costs Less than Can Equipment!

Ernest Langeberg and son operate family farm at Omro, Wisconsin. Read their letter below.

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NEW Duncan COMPACT BULK MILK COOLER by Zero®

New Moisture-Proof Urethane Plastic Foam Insulation increases tank's cooling efficiency—lengthens its life—adds extra strength.

ONLY 36 INCHES WIDE—EASILY SLIDES THROUGH MOST MILK HOUSE DOORS

SIZES RANGE FROM 100 THROUGH 300 GALLONS

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Here—at last—is a small, compact, *low-priced,* modern bulk tank *that's designed especially for the diversified family farm with a small dairy herd!* This new DUNCAN-COMPACT BULK MILK COOLER by ZERO gives you the labor-saving, time-saving, higher-quality-milk advantages of a *bulk tank*—enabling you to *make the milk profit you want,* but can't get with an old-fashioned, profit-eating can operation. Yet this high-quality, long-lasting DUNCAN-COMPACT *costs less than can equipment!*

FAMILY FARM STILL THE ANSWER!

Most of this country's farm production still comes from farms on which capital, management and labor are supplied mainly by the farm family. That's because the family farm — equipped with modern, labor-saving, material-handling equipment — is the most profitable way to operate, and beat today's cost-price squeeze. Read below how a few of many thousands of family farms are using modern dairy equipment to make more milk money.

"WE GREATLY INCREASED OUR INCOME"

—Says George Miller; Huntington, Indiana

"We greatly increased our income, and could only have done this by buying a DUNCAN-COMPACT. The DUNCAN-COMPACT is what a small dairyman can afford and still stay in business. Makes milking a pleasure instead of drudgery. Has saved us a lot of time. No cans. No lifting. And milkers work better with reserve vacuum.

"We know no bugs, dust or dirt can get in the milk when it is vacuum-sealed. The DUNCAN-COMPACT is very easy to seal and very easy to clean. It also operates cheaper than a can cooler. And we get paid for every drop of milk put into the tank. No spillage, stickage, etc. I like the way the DUNCAN-COMPACT's round design fits into my milk house. We are 100% satisfied with our DUNCAN-COMPACT."—George Miller.

"WE LIKE OUR DUNCAN-COMPACT"

— Says Ernest Langeberg; Omro, Wisconsin

"We like our DUNCAN-COMPACT COOLER. It fits in a small milk house. No remodeling to fit in small area. Also easy to clean and low pouring height." — Ernest Langeberg.

"MY TANK IS PAYING FOR ITSELF"

—Says Robert Owen; Randalia, Iowa

"I recently purchased a DUNCAN-COMPACT 200-gallon bulk tank. It has certainly made milking easier. It cleans very easily and does a quick job of cooling the milk down to 38 degrees. I milk 17 head of mixed cows. My tank is paying for itself through the higher price paid for bulk milk. I certainly would not go back to using cans."—Robert Owen.

FOR PARLOR OR STANCHION BARN MILKING!

There's a DUNCAN-COMPACT — *Atmospheric* or *Vacuum model* — to meet *your* particular need. Both come in 100, 150, 200, 250 and 300-gallon sizes. And are available with many of the ZERO's deluxe features. The *Vacuum* model — as basic unit of a direct pipeline, ZERO Pail Pipeline or transfer system — provides a *simple, low-cost* way to transfer milk into the tank.

There are over 200 different sizes and models of DUNCAN-COMPACT and ZERO Tanks — with optional labor-saving equipment — for every size herd, every type milking system. And a range of prices to fit every budget.

DIRECT FACTORY PRICES AND FINANCE PLAN MAKE IT EASY TO OWN!

It's easy to own a DUNCAN-COMPACT! Because you not only can get this modern bulk tank at a DIRECT FACTORY PRICE — but, in addition, a FINANCE PLAN is available which enables you to make payments out of increased milk profit as you use the tank.

This increased profit is derived from savings made possible by the DUNCAN-COMPACT. You save costs of retinning and replacement of milk cans and can coolers. You save time, labor electricity. You save through lower hauling costs. You save losses caused by stickage and the return of poorly-cooled milk. And there are many other advantages that increase milk profit.

NEW LEASING PLAN!

A new LEASING PLAN — by which the DUNCAN-COMPACT can be paid for as you use it, from savings and premiums derived from bulk methods — can be available through your milk processing plant. Ask your ZERO Dealer for details about this LEASING PLAN. Or, ask your milk plant or Association to investigate how they can secure details about this LEASING PLAN for you. If you wish, send us the name and address of the plant to which you ship.

LOOK AT THESE OUTSTANDING FEATURES!

- **Only 36 Inches Wide**—the DUNCAN-COMPACT easily slides through most any milk house door.
- **Quickly Installed** as everything is completely self-contained—with ready-to-plug-in electrical system.
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- **Made To Last For Many, Many Years.** Highest-quality material throughout—with liner, lid and deck portion of 18-8 stainless steel.

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